The Builder.

VOL. XC.—No. 3292. MARCH 10, 1906.

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The Church of Southwold.

THE story of the church of Southwold and of the present noble building can be briefly told. There was a small church here, probably occupying part of the same site, long before the great fabric of the XVth century was begun. The abbot and convent of Bury St. Edmunds were lords of the manor; but the prior and monks of the Cluniac house of Thetford, in right of their cell of Wangford in the adjoining parish, held the advowson of Reydon parish church, of which Southwold (then a small place of little importance) was merely a hamlet. A great contest arose between these two religious houses about the erection of a chapel here, to serve for the fisher folk; but at last, about 1202, an agreement was come to whereby the priory of Thetford, in conjunction with their cell at Wangford, undertook to build a chapel at Southwold, on ground given by the Abbey of St. Edmunds, for daily service by a resident chaplain, who was to be subordinate to the church of St. Margaret, Reydon. This original church or chapel of Southwold was destroyed by fire about 1430. During certain works in the year 1758, the foundations of the old building were laid bare, and were found to measure 72 ft. from east to west.

Just about the time when the old chapel was burnt out, the mouth of the Blythe was becoming of greater importance as supplying quays and a port for the wool trade. The once important town and harbour of Dunwich, a few miles to the south, was being rapidly absorbed by sea encroachments, and other small ports along this coast line were being silted up. Southwold, on the north side of the Blythe, and Walberswick on the south, were gradually growing into places of repute. Although Southwold did not obtain its first charter of incorporation until 1490, traders and merchants began to settle there far earlier in the century, and the harbour dues and fisheries brought in a small local revenue.

Here then was a great opportunity for the traders and inhabitants spending no inconsiderable share of their growing wealth in the erection of a stately house of worship, and one of the four great churches of this immediate neighbourhood (the others being Covehithe, Blythburgh, and Walberswick) was begun and finished through the generous gifts of the people. It is improbable that either the monks of Thetford or of St. Edmunds played any important part in the matter.

The date or dates of the new erection of the XVth century are not a matter of guesswork. A deed dated 1458, whereby the prior of Wangford gave land for the enlargement of the churchyard of "the new chapel lately erected," shows that the inhabitants did not lose much time in setting about the reconstruction of their old place of worship on the present grand scale. Various bequests for the making of seats, the candle-beam, and other furniture, in 1461 and years immediately following, show that the body of the church was by that time completed. Other bequests, about 1470, for the bells, point to the finishing of the tower ere that date. The fine porch seems to have been the crowning of the work, for there were bequests towards its erection or completion in 1488 and 1489.

The new church, which was dedicated to St. Edmund, consisted then as now of chancel with side chapels, clearstoried nave of seven bays, north and south aisles, south porch, and western tower.

There has been a good deal of diversity in the measurements of this large church, as usually cited. The following have been recently taken for this article:—Chancel, 44 ft. 10 in. by 19 ft. 2 in.; nave, 79 ft. by 19 ft. 9 in.; south aisle, with chapel, 98 ft. 4 in. by 15 ft. 7 in.; north aisle, with chapel, 104 ft. 3 in. by 16 ft.; tower, 16 ft. 1 in. east and west, by 14 ft. north and south; and porch, 12 ft. 11 in. north and south, by 11 ft. 7 in. east and west. The width of the walling of the tower arch is 3 ft. 6 in., thus giving a total interior length of 143 ft. 5 in.; the total width is 56 ft. 2 in. The space between the arches of the nave arcades is the same on each side, namely, 10 ft. 8 in.; this is the case with all the arches saving the two adjoining the tower, which have a width of 11 ft. 9 in.

It will be noticed from these measurements that this church is not on an entirely regular plan, although at first sight both sides seem uniform. Though not separated by any long interval of time, the construction of the aisles was not carried on simultaneously. It may

be fairly concluded that the north side of the church came after the south, for the parapet of the north aisle was left in an unfinished state until the restoration of 1867-8. On the north side the walling of the aisle is divided by the buttresses into eight bays; its extension eastwards comes to within 18 ft. (outside) of the east wall of the chancel. On the south side there are seven bays to the aisle, there being 24 ft. beyond it of chancel walling. The difference in length on the north side is accounted for by provision being made for a two-staged sacristry, the upper part of which is now used for the organ. All the side windows of the church are of three lights with good tracery, but east and west windows are of four lights. The great east window is now also of four lights. The original window was blown in during the great storm of 1696, when 200 coasting vessels, with most of their crews, were wrecked on the east coast. It was repaired with wooden mullions. The present mullions and tracery date from 1867-8; and so also do two or three of the south aisle windows, which had been repaired with wood or partly blocked up with brick.

The south porch (see lithograph) is a really noble example of the later flush-work of East Anglia; the scheme of the free-stone and flint panelling being richly carried out, particularly in the battlements and buttresses. There is a handsome canopied niche between the two two-light south windows of the parvise. There is a stone vaulted roof to the parvise.

The continuous stretch of clearstory windows, eighteen on each side, with the flat-topped pinnacles rising between, give a peculiar grace to the building. In the centre of the long line of the lead-covered high-pitched roof rises a sanctus-bell turret of some little size, and of no particular beauty. In fact, it has rather a clumsy appearance, and it would be much improved if it had greater height and was of a more fleche-like character. Much of the line of clearstory, with its parapets, was renewed in 1867-8, and this sanctus-bell turret was reconstructed. In a fine volume of drawings of Suffolk churches, made by Mr. Isaac Johnson, of Woodbridge (now in private hands), an exterior of Southwold, taken about 1800, shows a turret of a more ornamental and crocketed description.

The massive west tower, which rises to over 100 ft. in height, has a particularly fine appearance on the west side. The west doorway is of good design, with griffins in the spandrels, and lions as the terminals of the squared hoodmould. The hollows of the mouldings in the jambs and soffit of the arch are ornamented with a variety of figures. On each side of the west window there is a canopied image niche. Over the window is a bold inscription in crowned capital letters, formed in freestone and flint, which runs as follows: *St. Edmund ora p. nobis.* The large double bell-chamber windows are of unwonted construction, and would seem overweighted were it not for the particularly substantial general character of the tower; they are divided down the centre by narrow buttresses, which reach from the coping to the first string course, and there terminate. There is a quatrefoil band round the top of the tower, but no regular parapet. The summit of the tower, as well as the parapet of the north aisle up to 1866-7, seems to have been left in an unfinished state.

The interior of the church is of fine proportions, but must have been much more impressive when the great even stretch from tower to east window was broken up by the loft and great Rood on the top of the rood screen. The single hammer-beam roof extends unbrokenly from end to end. It is on the old lines, but only contains a few of the original timbers. Mr. Phipson, who restored the church in 1866-7, took off the whole of the roof and reframed it; only two of the entire series of carved spandrels below the hammer-beams are old.

It was a common practice, in old days, in many parts of England, of which there are several examples in Suffolk, to more highly ornament the bay of the church roof immediately over the Rood. Southwold afforded a singularly beautiful instance of this custom, extending over twenty panels. These panels had blue grounds spangled with gilded stars, and in each is a gold-crowned angel clad in a pink robe; the wings of the angels were alternately green above and red below, and *vice versâ*. The angels all hold either symbols of the Passion or inscribed scrolls with words from the *Benedictus*. Those on the north side bore:—(1) The pillar of scourging and Judas' lantern; (2) scroll, *Bendict's domin's;* (3) scroll, *Deus israel;* (4) spear and reed with hyssop; (5) palm branch; (6) scroll, *Quia visitavit;* (7) scroll, *Fec' rede'ptione';* (8) hammer and three nails; (9) Latin cross; and (10) scroll uninscribed. On the south side the angels bore:—(1) Pincer; (2) scroll, *Et erexit;* (3) scroll, *Cornu salutis;* (4) reed sceptre; (5) crown of thorns; (6) scroll, *Nobis in;* (7) scroll, *Domo david;* (8) rod and scourge; (9) Peter's sword, with Malchus' ear on edge; and (10) scroll, *Pueri sui.* Beneath these southern angels are the words *Te D'um c'fitemur,* and beneath those on the north *Te D'um laudam'.* This description is taken from a careful survey of the roof before 1866-7. Mr. Phipson found the painted panels so decayed that it was decided to remove them all, and to supply new wood and painting in facsimile, as far as possible, of the old. The work has been done well, and most visitors seem to think that they are looking up to XVth century painting. Had the work been undertaken a quarter of a century later, it would have probably been found possible to retain much, if not most, of the original.

The rood screen, with its extensions across the aisles, is on the whole the most interesting and valuable in Suffolk, and indeed in East Anglia at large, with the possible exception of Ranworth, Norfolk. The tracery and woodwork are good of their kind, particularly in the centre portion. But the chief merit and value of this screen lies in its painting and decoration. There is remarkable delicacy and finish in the gesso-work painting and gilding of the upper portion of the screen work, though the art displayed in the figure painting of the solid lower panels makes the greatest impression. It was at one time confidently stated, when the question of chestnut *versus* oak was much discussed, that the panels were of chestnut wood, but it is now generally admitted that it is close-grained oak.

The twelve panels of the central portion of the screen are occupied by twelve Apostles, though St. Paul displaces one of the original twelve (in this case St. Matthew), as is sometimes the case. They occur in the following order, beginning at the north end:—(1) St. Philip, with basket of bread; (2) St. Matthias, leaning on a sword, with letter M on hilt, to distinguish him from St. Paul; (3) St. James the Less, with fuller's bat; (4) St. Andrew, with saltire cross; (5) St. Thomas, with spear; (6) St. Peter, with the two keys (Doorway); (7) St. Paul, with uplifted sword; (8) St. John, with chalice and serpent; (9) St. James the Great, with pilgrim's staff, wallet, and escallop shell; (10) St. Bartholomew, with knife; (11) St. Simon, with an oar; and (12) St. Jude, with a boat. It may be noted that the Apostles are so arranged as to give St. Peter and St. Paul the posts of honour or of most observation, namely, one on each side of the entrance.

On the panels of the screen at the end of the south aisle, beyond which was the Lady Chapel, are representations of Old Testament prophets, three of which are recognisable, namely, Baruch, with knotted staff and wallet; David, with harp; and Moses. The names of others of the prophets can be deciphered, whilst the enriched backgrounds and diapered dresses are in some instances in fair preservation. The full list of prophets was Baruch, Hosea, Nahum, Jeremiah, Elijah, Moses, Daniel, Amos, Isaiah, Jonah, Ezekiel, and Samson.

The twelve panels of the screen that shut off the chapel of the Holy Trinity from the north aisle, beginning from the north end, bear:—(1) An angel, holding the triangular Trinity shield; (2) St. Gabriel, with sceptre and shield bearing the monogram of the Blessed Virgin; (3) an angel, bearing a shield of the Blessed Sacrament (three chalices and wafers); (4) Virtues, figure with crown in right hand and censer in left; (5) Powers, figure holding the Devil by a chain, scourging and trampling on him; (6) Principalities, figure with sceptre standing in a citadel; (7) Dominions, figure holding chalice and host in right hand, orb and cross in left, with a church below the feet; (8) Thrones, figure holding a tower; (9) Seraphim, golden figure standing on a wheel, holding a scroll bearing Sc's (sanctus) thrice repeated; (10) Cherubim, figure standing on a wheel, hands folded on breast; (11) Archangels, figure with sword and scales (St. Michael); and (12) Angels, crowned figure in golden alb and green stole, holding small nude figures representing souls in a white cloth. It will thus be seen that the whole conception was to figure the nine orders of the Heavenly Hierarchy, and the emblems of the Holy Trinity, the Blessed Virgin, and the Blessed Sacrament were added to bring the number up to twelve. Similar figures are to be found, though treated somewhat differently, on the richly-painted screen of Barton Turf, Norfolk. It is clear that this screen was the special gift of some merchant of the town. The *orate* of a memorial inscription of a donor or donors can still be read. In Martin's

Church notes of the year 1750, the inscription on this screen is given as *Orate pro animabus Johis Gulman et Catarinæ uxoris ejus.* This must be the same inscription described in "Gardner's History" (1754) as being "on the east of the pulpit by the north isle," but the name is there spelt "Gueman." In 1848, the words *Ora pro anima Johis Lyng* could be read on one of these panels, so that it would appear there were several donors. There can now be seen below each of these panels a monogram or merchant's mark, which seems to be formed by the letters A. A. T.

There is no one who has made so close a study of the East Anglian screens as Mr. G. E. Fox, F.S.A., and it may be well here to quote some of the words he used when describing this Southwold painting to the members of the Royal Archæological Institute, when visiting this church in 1899. After noting how much the figures on the northern and southern screens had suffered from time and evil treatment, he added:—"The less interesting figures of the chancel screen are more perfect, but have lost in genuineness from the restoration of the heads (*circa* 1850) by the late Mr. George Richmond, R.A., the well-known portrait painter, father of the present Sir W. Richmond, who formerly resided in the neighbourhood. Yet, in spite of time and wilful destruction and restoration, a great deal of the beauty of the original work remains. Notice the delicate gesso-work with which the architectural mouldings and the backgrounds of the figures of the Apostles are covered. In the panels, the figures being first drawn, the gesso or plaster was thickly applied to the ground and worked up to the outline of the figure. Then the plaster, whose setting had been retarded by mixture with certain well-known ingredients, such as honey, received the impressions of the different diapers by means of wooden stamps. On the flat face mullions of the chancel screen are seen, here and there, little flat-backed niches impressed in the gesso, with delicately outlined and shaded figures in black upon the gold which covers everything. The little figures had originally a tiny piece of glass over them, the arrangement being meant to imitate enamel."

It is usual to assign all beautiful painting and decoration of this character in East Anglia to the Flemings, who are supposed to have been beckoned across the water to ply their crafts wherever England's church lovers required the execution of specially skilful work. Quite recently an otherwise able writer on East Anglia has asserted that the Southwold painting is "indubitably of Flemish origin." The actual craftsmen who did the painting and exquisite decoration of this screen have not so far been identified, but Mr. Fox and others have supplied us with strings of obviously English names of men of Norwich and other parts of this district, from the days of Edward III. to Henry VIII., who were "payntours," "pictours," or "staignors," employed in church work. Thus Thomas of Yarmouth and Edmund of Bradwell were the craftsmen employed at high wages to do the tabernacle work and painting at the collegiate church of Mettingham, Suffolk, at the beginning of the XVth century. To this we can add an instance yet nearer to Southwold, not hitherto cited. In 1498, William Rede and William Sharft (purely English names) received large sums for painting the rood screen and the roof of the once noble church of Walberswick, only a mile from Southwold.

The pulpit on the north side of the nave is a fine piece of wood carving, coeval with the fabric of the church. It is in good preservation, and the rich colouring has been reproduced with much taste.

The richly-carved stall work, immediately within the screen, is original, and only slightly repaired. There are four stalls, with misericords, and three returned stalls facing east on each side.

On the south side of the altar is a stone sedilia bench, 7 ft. 6 in. long, the seat 1 ft. 7½ in. high and 1 ft. 3 in. deep. It is covered by a handsome projecting groined canopy, without any divisions, at a height of 7 ft. This is an effective but most unusual arrangement.

The octagonal font, at the west end, is a fine one; it stands 54 in. high, and the bowl has a diameter of 36 in. It was originally a "Seven Sacraments" font, but the carvings were broken off during the previous iconoclastic visitation of 1643. Dowsing, the notorious Puritan visitor, enters in his diary, under Southwold, April 8:—"We brake down one hundred and thirty superstitious pictures (glass), and four crosses on the four corners of the vestry; and gave orders to take down thirteen cherubims, and to take down twenty angels, and to take down the cover of the font."

In the vestry is a fine chest 5 ft. long, with two knights tilting on the front panel. It is somewhat older than the church, being of the time of Henry V. (1413-22). There is another massive chest, much decayed, with coved top, in the parvise.

The rood loft staircase is in the wall of the north aisle. In the upper doorway now stands a wooden figure of a "Jack of the Clock," which used to be over a small gallery within the tower. It was worked by the clock machinery to strike the hours within the building. The style of armour shows its date to be *circa* 1500.

A remarkable feature of the church is the absence of old monuments. Doubtless various brasses have disappeared.

"Jack of the Clock," in Southwold Church.

The interesting brass plate to James Petre, the royalist minister of Southwold, described in "Gardner's History" (1754), was subsequently purloined. It turned up in a neighbouring iron foundry in 1850, and was replaced within the chancel. He died in 1700, aged eighty-one. About the same time a XVth century brass plate was found on the top of a vestry cupboard, inscribed :—*Orate pro animabus Johannis Bischop et Helene uxoris sue et omnium fidelium defunctorum.* By an error of judgment this plate was affixed to the screen of the south aisle, where it still remains. Its presence there makes visitors believe that John and Helen Bishop were the donors of the screen.

On the south side of the large churchyard a group of three graves, each with its headstone, often attracts attention. They are to the memory of Thomas Gardner, an antiquary of some note, who published a valuable and now very rare history of Dunwich, Blythburgh, and Southwold in 1754, and his two wives. He long outlived his two partners, the one dying in 1729, and the other in 1759. The middle stone bears the following inscription, said to have been written by the antiquary shortly before his death :—

"In memory of
THOMAS GARDNER, Salt Officer,
Who died March 30th, 1769, aged 79.
Between Honour and Virtue here doth lie
The remains of old antiquity."

THE PUBLIC, THE LONDON COUNTY COUNCIL AND THE DISTRICT SURVEYORS.

FOR a second time the Building Act Committee of the London County Council has brought up a recommendation that from April 1 next all district surveyors should be paid a salary by way of remuneration instead of fees, and for a second time the recommendation has been referred back. On January 13 last, in criticising the Committee's Report, we propounded this question, "Is there not rather a strong probability that the ratepayer will find himself called upon to share with the building-owner a burden which hitherto the building-owner alone has had to bear?" and, at the meeting of the Council on February 27 Lord Welby is reported to have said that the Finance Committee did not look with very great favour on the scheme of the Building Act Committee, fearing that its adoption might involve a charge on the rates. The amendment to refer the recommendation back was last week again carried, apparently on financial grounds, and by the increased majority of 59 votes to 40.

If we may judge from the correspondence which has appeared not only in our own columns but in the press at large, there appears still to exist a good deal of misapprehension as to the 50,000*l.* per annum which, in round figures, is the sum involved in the present discussion. The Building Act Committee, in their search for paper "profits," appear to have lighted upon a disused section in a ten-year-old Act of Parliament which they have thought good enough to enable them to divert an annual income of 50,000*l.*, earned by professional men, into the devouring, but decidedly unprofessional, coffers of the London County Council. The persons who at present receive this 50,000*l.* per annum are the district surveyors, while the persons who pay this 50,000*l.* per annum are the building-owners (not the ratepayers) of London. The distinction between "building-owner" and "ratepayer" is an important one, which, though frequently lost sight of in the course of the present controversy, cannot be too much insisted on. It must not be supposed that every owner of a building in London is a "building-owner"; not at all; in the technical sense the phrase means any person, be he freeholder, leaseholder, or tenant on agreement, who sets out to make structural alterations to a house or premises, or to erect a new building within the boundaries of the County of London. The building-owner's relations with the district surveyor may perhaps best be realised by a simple illustration :—

I want to make an addition to my house in London; my architect prepares plans and obtains an estimate from a builder; a building contract is completed; I notify my neighbours on each side; I then become a "building-owner"; my builder before commencing the work gives notice to the district surveyor, who is an independent person acting by the authority of an Act of Parliament. The surveyor's duty is to see that the building operations are carried out in accordance with the London Building Acts; and, for this purpose, he visits and inspects the works from time to time. That he should be an independent and incorruptible man is as much to my interest as it is to the public advantage; and therefore, when the works are finished and my builder sends in his account, the last item that I quarrel with in that account is the amount of the fee, regulated by statute, which is paid to the district surveyor. Now, unless I have wanted to do something unusual—such as, for example, to project a bay window beyond the main front of my neighbours in the street, neither I myself nor my architect nor my builder will have had any communication whatsoever with the London County Council, nor will any official from Spring-gardens have crossed my threshold.

It will be evident from this illustration that the service performed for the building-owner by the district surveyor is not to be compared with the police service or the fire-brigade service, but is in the nature of a professional service rendered by a professionally trained man to a personal building-owner, and is paid for by that owner. The fire-brigade service, on the other hand, is one maintained at the expense of the ratepayers (with the assistance of the fire insurance offices) for the benefit of the community at large. Under the scheme recommended by the Building Act Committee it was proposed that an unwieldy and complicated service should be set up and maintained at the ratepayers' risk, whereby the Council hoped to make a profit—a ratepayers' speculation—out of fees taken from building-owners engaged in enterprises from which the ratepayer was not to get any benefit, whilst the building-owner would probably be making large profits. For example, on the occasion of a Royal procession the Council would have, at the ratepayers' cost, to pay for the services of the additional assistance required by the district surveyors in inspecting the construction of the large stands which on these occasions are erected along the line of route, to the great profit and advantage of the owners of the same stands. Hitherto the owner has paid the fees for this service to the district surveyor, who has had not only to inspect the stands but himself pay for any necessary assistance. We are not speaking of the licences granted by the Borough Councils for the erection of the stands, but of the work of supervision, for the cost of which the ratepayer is not now responsible; and we fail to see why the ratepayer should be called upon to put his hand in his pocket for the benefit of a building-owner engaged in a profitable undertaking, who is perfectly willing to pay for the work of supervision.

As we have said, it is these financial objections to the scheme which appear to have carried the majority of the Council in their decision to refer the recommendation back. The letter which the Royal Institute of British Architects has caused to be sent to the Chairman and members of the London County Council was printed in our issue of last week, and approaches the question from an even higher standpoint, and is, moreover, in accordance with the views we have consistently advocated in these columns. We note with approval that in the last paragraph of that letter the suggestion is made, "that the disability which has been imposed in the case of some of the later appointments should no longer be enforced, and that in future all surveyors acting under the provisions of the London Building Act should be practising architects."

That this was the intention of the Legislature is clear, as a reference to sect. 144 of the Act of 1894 will show: that section provides that, "If any building or structure be executed, or any work done to, in, or upon any building or structure by or under the superintendence of any district surveyor acting professionally or on his own private account, that surveyor shall not survey such building or structure for the purpose of this Act or act as district surveyor in respect thereof or in any matter connected therewith, but it shall be his duty to give notice to the Council, who shall then appoint some other district surveyor to act in respect of the matter." In face of this section it would appear difficult to justify the compulsory subscription by candidates for the office of district surveyor of the following declaration amongst others :—"That he will not during his continuance in office (except in the discharge of the duties thereof) carry on business as an architect, surveyor, or builder, or directly or indirectly, as a partner or otherwise, be interested in such business." The result is that whereas Parliament has said that a district surveyor shall not carry on private practice within the area of his own district, the London County Council has made it impossible for a district surveyor, appointed under these conditions, to carry on private practice anywhere; and there are not a few who will be disposed to agree with the learned counsel who recently expressed a strong opinion as to the legality of this restriction, "as well might the Council require the district

surveyors to go about wearing white hats."

At first sight it might seem as if the question was one primarily for candidates for the office of district surveyor, but this is not so. To bear the responsibility of approving "the construction of every public building, including the walls, roofs, floors, galleries, and staircases," to issue certificates as to safety of cutting away chimney-breasts, to supervise the details of steel construction, to settle means of access to roof in case of fire, to survey and report as to dangerous structures and to certify as to safety of sky-signs, there is required a man who has had something more than the experience of a clerk in a surveyor's office, whose outlook is somewhat wider than is to be obtained from a desk at Spring-gardens, and whose technical education has been founded on something broader than the reading of a couple of Acts of Parliament together with the text-books required to pass the statutory examination under the London Building Acts.

It is really no answer to point to the undoubted fact that no exception can be taken to the persons who have recently been appointed under the disabling conditions; in the struggle for existence you will find here and there a man who has received a liberal professional education, who has commenced practice as an architect fired with a high ambition and a noble ideal, and who ultimately finds himself occupying, not without a struggle, the seat at an official table and having to deal with the intricacies and details of statutory forms and notices; but supply quickly lowers itself to the standard of demand. Say to the young architects:—"We do not want for this work of supervision men who may become Presidents of the Institute and Royal Gold Medallists, what we require is a man who, armed with his cloth-bound copy of the Statute, will search out 'irregularities' and have them rectified, who will take a text-book with him to test the strength of a structure alleged to be dangerous, and who, having learned his business on a stool in a district office, knows all the 'forms and notices' by heart and will regulate his steps *pari passu* with the machine at Spring-gardens." Say this persistently for a little longer, and in a few years you will get plenty of candidates for the office, and they will be men admirably fitted for police building-inspectors' duties, but eminently unqualified to act in any professional capacity where self-reliance, strength, and judgment are required. Already there is a noticeable tendency for men to come up for the statutory examination and to neglect the wider reading and study which are required in the examinations for membership of the Royal Institute of British Architects. *And it is the building-public who will suffer by this lowering of the standard of qualification for the public service.*

But, it may be asked, is not the building-public to pay less for this inferior service than under the conditions contemplated by Parliament? The answer to this question is that the building-public are to pay neither more nor less than the fees laid down by Parliament for a service which is not to be of the standard hitherto obtaining, but of such a standard as shall satisfy the requirements of the London County Council, a standard which is sufficiently indicated in the aforementioned "Conditions of Appointment."

We should hope, therefore, that the majority of the Council will see the wisdom of adopting the suggestions of the Royal Institute of British Architects, and of reverting to the high traditions of a service which has proved itself efficient in the past, and to which no exception has been taken either by professional or public opinion.

NOTES.

Coast Erosion. TWO PAPERS read by Mr. Allanson-Winn—one before the Civil and Mechanical Engineers' Society and the other before the Society of Engineers—have served the purpose of eliciting useful discussion as to the advisability of supplementing ordinary groyning by some form of submerged groyne carried considerably beyond low-water mark. The author has devoted himself with much persistency during recent years to the advocacy of his "deep sea erosion" theory, and although the two recent papers are not identical as to subject matter and treatment, they both emphasise the contention that the continual waste of material below low-water level is one of the chief causes of the landward advance of the sea towards many coast lines. Various sections of the East Coast were exhibited at the meetings in support of this view, and it certainly is a reasonable argument that the friable material frequently extending from the visible shore into deep water should be regarded as invisible shore, and as such ought to be protected just as much as the exposed portion. Submerged groynes in themselves are no novelty, having been applied to some extent at various places for the purpose of collecting material to fill up swills beyond low-water mark. But Mr. Allanson-Winn would like to see such works carried into the sea to distances of from 100 ft. to 300 ft. or more, according to local conditions. The task of building concrete groynes or of constructing pile groynes in deep water would evidently be most costly, and the author's proposal is that a groyne, consisting of a chain cable with an attachment of bushes, or other suitable material, would form a flexible obstruction useful for arresting and collecting travelling material. Groynes made in this way have been tried at Bray, near Dublin, under extremely unfavourable circumstances, and so far the results of the experiment are inconclusive as to the efficiency of the construction, and as the groynes were not carried for a sufficient distance seawards, they have not thrown any light upon the accuracy of the theory that beneficial effects would follow the attempt to build up beach material upon the permanently submerged portion of a shore where movement of material takes place below the surface of the water.

British Canals and Waterways. NOW THAT the paper read by Mr. J. A. Saner "On Waterways in Great Britain," together with an abstract of the discussion and correspondence, has been issued in pamphlet form by the Institution of Civil Engineers, quite a useful collection of opinion is available on the subject, and it seems a pity that this should not be obtainable by members of the outside public who are interested in the important question involved. However, there will be no lack of data relative to our canals and inland waterways when the new Royal Commission once gets to work. The terms of the reference to that body give ample scope for the most searching inquiry, the expression of views as to the benefits to be derived from an efficient canal system, and the expediency of placing such a system under properly organised public control. The Government must be congratulated upon having taken action, and also upon the *personnel* of the Commission which represents all interests involved, and ought to result in recommendations calculated to assist Parliament in removing the obstacles now standing in the way of inland navigation—a means of transport which contributes so largely to the prosperity of various Continental countries.

Winchester Cathedral. IT IS reassuring to learn that the alarmist rumours which arose last week after the fall of a stone from the choir vaulting of Winchester Cathedral were based (as usual) upon gross exaggeration of the facts. The actual incident was in itself trifling, and was the result of the underpinning works now in progress. Still, it is the fact that the more closely the condition of the walls and foundations is examined, the more serious appears to be the task before the cathedral authorities. It was once hoped that the insecure portions of the fabric were only those in the south wall of the presbytery and the east wall of the south transept. Unfortunately, the whole of the north wall is now found to require attention. This means that a further sum of 10,000*l.* will have to be provided for underpinning and other works, but does not involve any new problem or constructional difficulty, and as the instability of the north wall actually exists it is rather fortunate than otherwise that it has been unmistakably demonstrated at the present juncture.

Sale of Real Property. WE have recently commented on two cases on the sale of real property, when the vendors, after it was discovered there had been a misdescription of the property, endeavoured to rescind the contract under the conditions of sale, but in one of which the Court held this could only be done on payment of certain costs and expenses incurred by the purchaser; and in the other in which the purchaser was unwilling to rescind except on the payment of damages, when the Court held the purchaser to be entitled to compensation. The latest case on this subject is Quinion *v.* Horne, where certain freeholds had been sold by auction. The conditions of sale were in an ordinary form, and contained a clause that if the purchaser should make any objection or requisition either as to the title, the form of conveyance, or other assurance, or any matter appearing in the particulars, conditions, or abstract, "which the vendor shall be unable or unwilling to

comply with," the vendor should be at liberty to annul the sale. The abstract disclosed the fact that the property had been vested in a certain lady for life with ultimate trusts depending upon her having children or not. The purchasers required to know the date and place of birth of any of the children, but the vendors refused to comply, and claimed to rescind the contract. There was no difficulty in giving the desired information, and the Court held that the requisition was reasonable, and decreed specific performance of the contract. Intending purchasers must often have been struck with the arbitrary nature of the above condition of sale, and it is satisfactory to find that the Courts will only give effect to it when it is not exercised in an arbitrary and unreasonable manner.

Automatic Railway Couplings.

IN a letter to the *Times* Mr. Richard Bell makes one of his periodical and not unreasonable criticisms upon the inaction of railway companies with regard to the adoption of automatic couplings. Judging by the terms of a resolution adopted at the International Railway Congress of Washington, British railway companies appear to think that the system used in Great Britain and Ireland is at present satisfactory as regards rapidity of handling and the safety of employees. This hopeful view is not supported by the subsequent recommendations of the Railway Clearing House as the mouthpiece of the railway companies, the Association of Private Owners of Railway Rolling Stock, and the Mining Association of Great Britain. The excuse urged by the companies for the non-adoption of a uniform system of automatic couplings is that trials have been and are still being made, but that the satisfactory coupling has not yet been found. It is quite correct that the Board of Trade are not prepared to recommend any particular form of coupling apparatus, but equally correct that the Department have not made any perceptible effort to exercise the powers conferred by the Act of 1900 to "hold such inquiries and make such experiments as they think expedient" with the object of finding a safe and reliable coupling. If this important department could be persuaded to take action there is little doubt that the annual sacrifice of life and limb exacted by the existing shunting system could be reduced very materially, with concurrent advantages to the railway companies in the conduct of traffic.

Scientific Sewage Disposal.

THE scientific disposal of waste products really dates from the Report of the Royal Commission of 1844 which led to the development of the theory that disease was bred by heaps of decomposing organic matter. Although we now know that this theory was not correct, yet it did good by laying emphasis on the function of such material as a carrier of disease, and by stimulating the great reforms in this country upon which other nations have modelled their own sanitary systems. In the December number of the *Technology Quarterly* Mr. C. E. A. Winslow, a well-known American chemist, discusses the historical development and present status of the problem of the scientific disposal of city sewage, comparing disposal by dilution, on land, by intermittent filtration, the septic tank, the contact bed, and the sprinkling filter. All these systems originated in Great Britain, and of the last Mr. Winslow says that it will treat sewage at much higher rates than other processes, giving a very satisfactory effluent, and that the body of the beds is cheaper to construct. The only difficulties to be encountered in America are the distribution of the sewage and the possible bad effect on the beds of severe winter weather. Experiments are now being conducted at Boston (U.S.A.) with this form of filter, and Mr. Winslow considers that if the difficulties mentioned can be got over the sprinkling filter will furnish the best treatment of sewage known.

Concrete-Steel Floors.

IN a paper read before the American Society of Civil Engineers, Mr. John S. Sewell briefly reviews the various formulæ evolved during the past few years for the design of concrete-steel structures, and adds one more to previously existing equations of this kind. Mr. Sewell's new formula for the moment of resistance (M) of a beam is $M = h\ d\ A\ T$ where A = total sectional area of steel, d = depth of the centre of gravity of the steel below the upper surface of the beam, H = a constant, T = unit stress in the steel. This is a very simple equation, and in the present state of knowledge probably quite as reliable as the more complicated expressions put forward by some engineers. Among the general deductions stated in this paper are:—(1) That all floor beams and slabs should have, in addition to horizontal reinforcement, web members securely attached thereto, and arranged in accordance with the distribution of shearing stress; (2) that the bond of that portion of each web member passing through the concrete in compression should be sufficient to permit the strength of the member in question to be fully developed, and that the attachment of the member to the horizontal reinforcement should be equally strong; (3) that clips should be employed to hold the horizontal bars at the proper distance above the centring, and that these bars should be of circular or rounded section, so that the concrete may readily flow beneath them; and (4) that as the reinforced concrete beams and joists of a floor system act as continuous girders, whether intended or not, reinforcement ought to be used at the points of contrary flexure to avoid the risk of unsightly and sometimes dangerous cracks. These suggestions are all good, even if not particularly novel.

The International Exhibition.

THE sculpture remains the same at the New Gallery; the paintings have disappeared to make way for a heterogeneous collection of studies and sketches. Those who wish to realise what the ultra-modern or "progressive" class of artists are bringing art to may find it instructive to turn into the South Room, where the numbers commence, and study the kind of things they find there, and ask themselves what art is coming to. As far as the contents of this room are concerned it would appear that the object of art is to represent, in the coarsest and most brutal spirit, whatever is most base, ugly, and vulgar in human life and society, and we can conscientiously say that we have never been in any exhibition room the contents of which seemed so repulsive. In the other two rooms much clever work is scattered about, though here too beauty or artistic finish seem to be the last qualities sought for. And we must say that we are tired of hearing Menzel called a great artist. He was a supremely clever artist; nothing could be cleverer than the succession of small portraits shown here, with the heads only coloured; but cleverness is different from greatness. We have never seen anything of Menzel's which showed either beauty of composition or beauty of sentiment; and without those qualities in art there is no true greatness.

The Carfax Gallery.

THE Carfax Gallery seems to be the chosen home of sketchiness in art; a character which is certainly kept up in the present exhibition of bronzes by Mr. C. Ricketts and drawings by Mr. Ludwig von Hofmann. In regard to figures it would appear from one or two examples that Mr. Hofmann can draw figures when he takes the trouble to do so; but some of the figure-subjects exhibited, as in "The Grooms of Diomed," are careless in drawing to a degree, in fact not modelled at all, and the absurd "Tarantella" is a kind of scrawl that any one might produce without having studied figure-drawing. The best of the figure subjects is "The Narrow Way," a line of nude boys following each other down a plank to bathe; a good picture might be worked out of this, which as a mere sketch (for it is nothing more) is interesting and original. On the other hand, some of the landscape studies, though they also are little more than sketches, are very powerful and original; we may notice especially "Out of Bounds," a hill scene; "The Troubled Water," a pool among dark rocks with the surf of the sea seen outside, and "The Sullen Rock," a composition which tells powerfully from the other side of the room, though it will not bear looking into. Mr. Ricketts's sculpture sketches we should regard with interest as terra-cotta or plaster models, suggestions for sculpture groups; one or two of them—"The Tragic Man" for instance, and the "Medea," are fine and pathetic in feeling, though the "Medea" is rather exaggerated for sculpture, which should preserve a certain repose even in tragic subjects. But they are not things which justify their being put into such a material as bronze; they are too rough in line and too unfinished for that. Bronze demands severe work; it is not a material that will tolerate sketchiness.

The Modern Gallery.

THE collection of water-colours by Miss Edith and Miss Gertrude Martineau, at the Modern Gallery, if it does not reach the highest type of excellence, contains at all events a great deal of interesting and conscientious work. Neither of these artists is content to slur over anything or to depend upon roughly indicated effects. In Miss E. Martineau's "His Dinnerhour" and "A Crop of Flowers" (35, 39) the figure and the landscape are treated with equal care. Miss E.

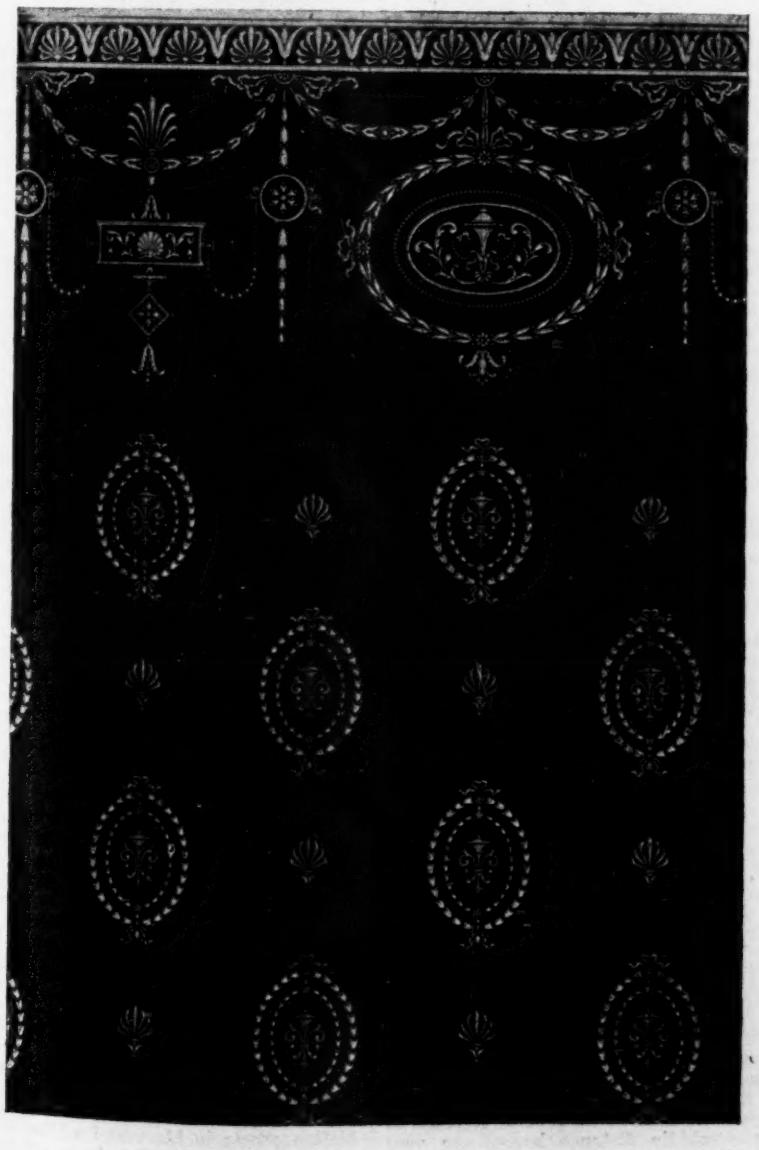
Martineau is perhaps stronger in figures than in landscape; two portraits (77 and 91—the latter especially) are admirable, as also the characteristic study "An English School-girl" (81) and that of the child in "Empty!" (177). "Sandhills at Littlehampton," next to this, is one of the best landscapes in the collection. Among Miss G. Martineau's landscapes may be mentioned particularly "A May Sketch in Glen Ennich" (26); "Highland Cottages near Aviemore" (43); "Birch Trees, Loch-an-Eilan" (60); "Autumn Evening near Aviemore" (109); and "Late Afternoon near Loch-an-Eilan" (144), a subject entirely trees and tree-stems, making a remarkable little picture. Among Miss E. Martineau's drawings are some excellent flower-studies.

The Goupil Gallery.

AT the Goupil Gallery there is a collection of M. Le Sidaner's pictures under the title "Venise du Crépuscule à la Nuit," a convenient and suitable title for a painter who only paints things as if seen through a mist. There are seven finished pictures; the remainder are small studies in oil and pencil, mostly for these pictures. The best of the pictures is "Le Petit Canal," an effect in twilight in a small cul-de-sac canal, with a bit of crimson light in a window at the further end. The effect of the ruffled water in the uncertain light is very well given, and there is a unity of effect about the whole thing. "Le Palais Ducal" is seen at night in a large picture, with the flare of two large outside lights reflected in the water; it is effective but rather stagy. "L'Horloge, Place St. Marc," is a good composition showing part of the square, with the clock face, as seen from one of the porches of the Duomo: the manner in which the texture and colour of the dark marble column in the foreground are got by repeated touches of all kinds of mingled colours forms a curious study in manipulation. "Le Palais Gris," relieved by one little bit of warm-tinted evening sky in the background, is a capital study of effect. The picture of the "Bridge of Sighs" is not good; far too woolly in texture, and the architectural details are made havoc of. M. Le Sidaner has invented an effect and a handling of his own, but so far he is a mannerist and can only do one thing. If he could get out of that groove he might show whether there is more in him than a painter of scenic effects. We suspect there is, but we have not had it yet.

Messrs. Jeffrey & Co.'s Wall Papers.

MESSRS. JEFFREY & Co. have been making a little exhibition at their West-end Rooms in Mortimer-street of some of the new designs for wall-papers either prepared in their house or made for them by Mr. Lewis Day and other decorative artists. In this instance the two best designs we saw were those to which no well-known artist's name was attached, two called "The Portland Decoration" and "Rose and Smilax"; the latter is a floral design, naturalistic in the smaller detail but strictly conventional and geometric in general arrangement, and is very successful. There are others, such as "Laburnum," which are far too naturalistic to come under the head of decorative design in the true sense of the word; one that we object to still more is a trellis with flowers apparently woven in and out of it; but we have no doubt there are plenty of people who will think this is a "sweet" idea for decorating the walls of their rooms. We give an illustration of the "Portland" design, which is produced in a good many different colours and looks well in all. The "Bethune" frieze and "Jura" filling is also a good and effective design, the main wall space treated with alternating broad and narrow vertical strips of foliage design, well contrasted by a frieze in which vesica-shaped panels containing a bold flower ornament are connected by undulating bands with a simple decoration.



The "Portland" Decoration: New Wall-paper by Messrs. Jeffrey & Co.

LETTER FROM PARIS.

THE monument to Alfred de Musset presented to Paris by M. Osiris, and of which we published an illustration in our issue of October 29, 1904, has just been inaugurated. It is the work, as will be remembered, of M. Mercié, and has been set up at the angle of the Rue de Richelieu and the Place du Théâtre Français, where it is not, however, seen to the best advantage. It has no architectural setting, and seems rather to have got by accident into this busy corner; it wants the grass and foliage of a park or garden to set it off properly, instead of a crowded street, where the figure of Musset in the everyday dress of 1840 seems rather an anachronism.

The discussion of the budget for art gives rise, every year, to sharp discussions in the Chamber of Deputies, and numerous proposals and Ministerial promises, which never come to anything. This year the subject of the School of Decorative Art has again come up for discussion, and the Government has undertaken, with the co-operation of the Municipality, to build a large school of decorative art on the site of the former Hôtel Dieu. Probably a similar promise will be made again next year, without any commencement being made of the work. The eternal question of the Louvre has also been again discussed, without the Government being able to say when the Colonial Offices will be removed from a position in which this occupation of the buildings is a constant source of risk of fire to the national art collection. It has constantly been proposed to transfer the Colonial Department to the Rue Oudinot, but the force of inertia seems always to prevail. It is the same with the question of the Conservatoire of Music, which it has long been proposed to rebuild on the site of the Caserne de la Nouvelle France. This will also probably turn up again in next year's budget, with other important schemes which the Government is obliged to defer for want of money being voted for them. The only chance seems to be that, since the separation of Church and State, the funds which used to go to keeping up the Diocesan buildings may be turned to account in the cause of art.

The Académie des Beaux-Arts has just profited by the liberality of the nephew of the late M. Henner, who, in memory of the eminent painter's former residence in Rome, has presented to the Institut de France a "rente" of 9,000 francs, which is to found three scholarships for painter students at the Villa Medici. This generous gift of M. Jules Henner is a worthy complement to the presentation of his uncle's pictures which he has already made to the Municipality of

Paris. These are now hung at the Petit Palais, and the new Salle Henner will shortly be opened to the public. In its coming session the Council intend to vote a considerable sum to enable M. Girault to finally complete his beautiful building. The intended scheme includes, besides modifications and improvements in the plan, a considerable amount of decorative work. The exterior façade and the garden of the interior court are to be decorated with statues, and the large gallery parallel with the Avenue Nicolas II. is to be decorated with paintings, the cupola especially, on the paintings for which M. Besnard is now at work.

The Municipality have awarded the Lheureux Prize for this year to M. Formigé. This prize, founded in 1900 by the widow of the late M. Lheureux, the architect, was to go alternately to a sculptor and an architect, and has already been awarded to MM. Dalou, Mercié, Barrias, Girault, and Pascal. It is the entire life's work of M. Formigé, rather than his recent Paris Crematorium, which the Conseil d'Architecture of the Municipality has wished them to recognise.

M. Nénot has just completed, in the Place du Panthéon, the architectural pedestal for M. Rodin's figure, "Le Penseur," which will be shortly inaugurated. The monument to the memory of Falguière, at Père Lachaise, was inaugurated on Sunday last. The main feature in this monument is a figure carved in stone, by M. Marqueste, symbolising "Inspiration." A subscription has been set on foot to raise a monument to Gambetta on the *place* named after him.

The Hôtel de Lauzun, which the Municipality have given up to Baron Pichou, grandson of the former proprietor, at the price of 300,000 francs, has been classed among the "Monuments Historiques." By this arrangement the considerable works of repair and restoration which the building requires will be carried out under the control of the Government. M. Juste Lisch, Inspector-General of Monuments Historiques, will be the architect in charge, and the restoration of the paintings has been confided to the competent hands of M. Chas. Lameire. The house is connected with the history of the "Grande Mademoiselle," daughter of the Duc d'Orléans and cousin of Louis XIV.

The death is announced, at the age of sixty-three, of the painter Adrien Moreau, who had considerable celebrity at one time for his *genre* painting and his scenes of the time of Louis XV., in which he exhibited a great deal of learning in representing the costumes and manners of the day. He was educated in the atelier of Pils. Among his principal works "Une Kermesse au Moyen Age" (1876); "Le Menuet" (1878); "The Rehearsal of the Tragedy of 'Mirame' before Cardinal Richelieu" (1879); "La Duchesse de Longueville à Dieppe" (1886); "La Mascarade au XVIIme Siècle" (1887); "Tabarin" (1889). From 1890 to 1900 he worked on a series of pictures of the history of Josephine and Napoléon. He worked in water colour also, and was one of the founders of the Société des Aquarellistes, whose exhibition is just now open at the Georges Petit Gallery.

The death is also announced, at the age of seventy-seven, of the sculptor Charles Auguste de Bourg, a former pupil of Rude. Among his principal works are "Danaé"; "Saint Jacques"; "Enfant jouant avec une Sauterelle"; "Le Travail"; "Dante"; and portrait busts of Lady Wallace and of Emile de Girardin. Sir Richard Wallace commissioned de Bourg to design the small public drinking-fountains which he presented to the city of Paris.

ROYAL ACADEMY LECTURES.—Sir W. Richmond commenced, on Thursday last week, a series of three lectures on "The Development of Sculpture," but as they cannot all be reported in this week's issue (the concluding one having been given on Thursday last), we prefer to give the report of the three together in our next issue, instead of separating them.

WESLEYAN SCHOOL, GRAVESEND.—The school portion of the new Wesleyan premises in Milton-road, Gravesend, was opened recently. The new suite of rooms consists of a schoolroom with three classrooms. The roof is of pitch-pine. The electric-lighting scheme was carried out by Mr. Warner, the builder being Mr. Tong, and the architects Messrs. J. Morley & Son.

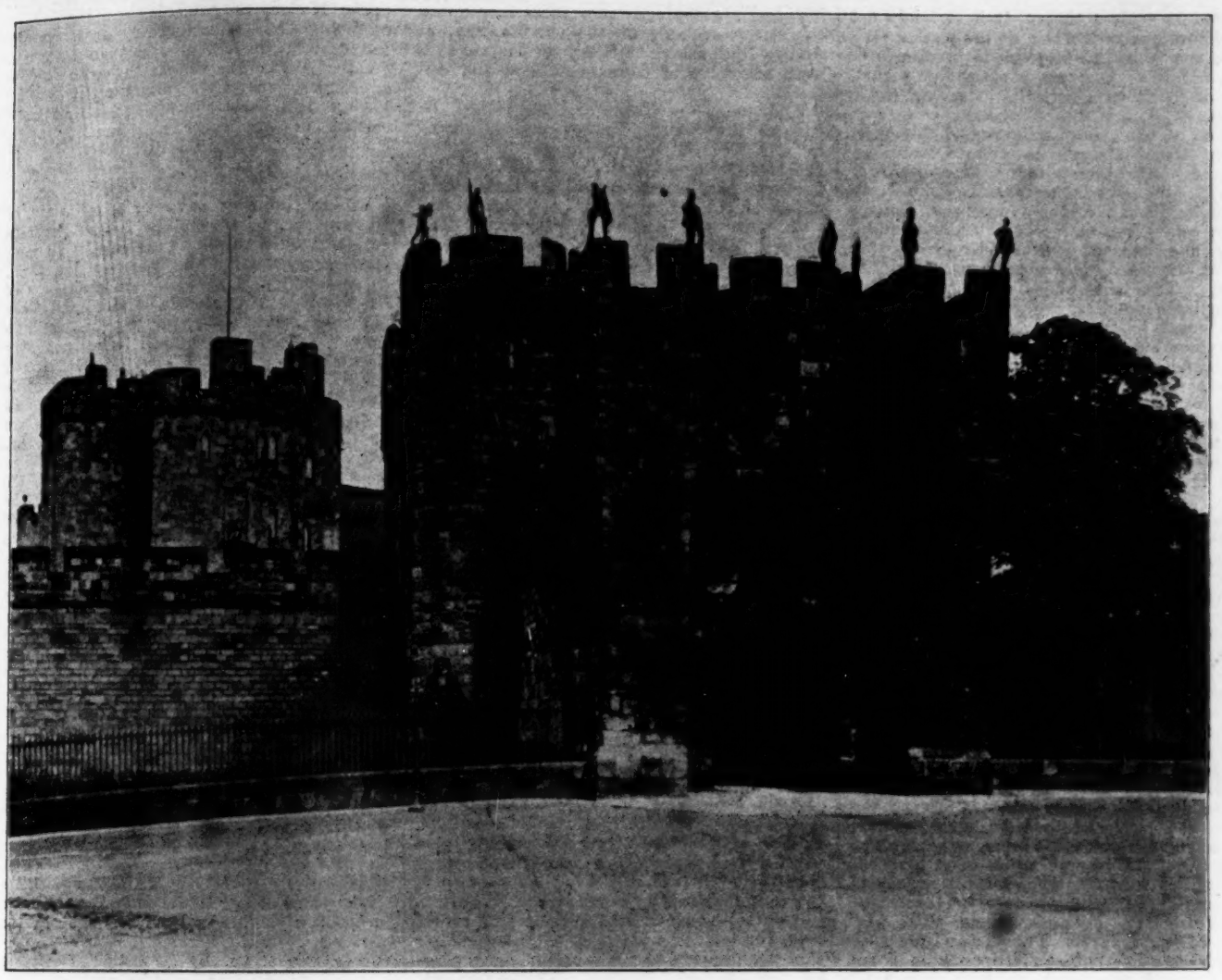
THE SOCIETY OF PAINTER-ETCHERS.

THE exhibition of the Society of Painter-Etchers is one of the best we remember, not merely because the work is nearly all good—it usually is that—but because by far the larger part of it is genuine etching showing the quality and manner of work peculiar to that art, and which nothing else can imitate or replace; there are very few either of what we call the smudge type of etchings, or of those laboriously finished and shaded-up productions which want all the characteristic freedom of etching, and are really only engravings under another name. The real object of etching is to produce line drawing under more free conditions for the hand, and with a better and more subtle tone, than can be attained in any other form of line drawing.

Hence one of the great objects is to know how to make the most of your line; to bring out the essential points in the composition with it, and to know how to leave out and where to leave off. Some of the most successful etchings ever made, and some of the best in this exhibition, are remarkable for the large amount of blank paper they show; not indeed the raw blank which would be left in a pen-drawing on the same lines, but with the tone which the method of printing and the surface of the copper gives. A fine example is Sir C. Holroyd's "Fondamenta della Zattere" (71), where the stone jointing of the paved quay in the foreground is all boldly lined out with no other surface work, and the water beyond left a blank space; by which treatment the contrast between solid masonry and light-reflecting water is conspicuously indicated in exactly the manner suitable to the conditions of etching. All these Venetian subjects by Sir C. Holroyd, which hang together at one of the angles of the room, are in fact excellent, and are well worth the consideration of the visitor; Nos. 73 and 75 especially, besides the one already mentioned. Mr. W. L. Wyllie, in "Torpedo Boats Manœuvring" (31), has ventured to work up the sea surface completely in close lining giving the modelling of the waves, and it is very ably and conscientiously done, as one might expect, but the result is not very satisfactory; one feels that it is an attempt at something which cannot really be well done with line. In Miss Ethel Stewart's fine etching, "Evening Tide at Bridgewater" (14), we have another good example of the faculty of leaving out; the river bank on the right was probably really dark rather than light in the actual scene, but it suited the composition, and the method employed, to leave it white, and the picture would have lost freedom and effect by any attempt to work it up into realism. Etching, as far as landscape goes at least, is not an imitation so much as a translation of Nature, and it is in that very fact that much of its interest lies. Where some otherwise good works in the exhibition rather fail through want of letting alone sufficiently, is in the sky. Why scrawl lines across the sky, as in Miss Constance Pott's otherwise excellent work, "Mill, Flanders" (39), and some others? This kind of treatment does not at all convey the idea of sky, and adds nothing to the picture in any other sense. Rembrandt's very materialistic rain-marks in the "Three Trees" have given excuse and precedent for a good deal of sky-scrawling which were better omitted.

Mr. Malcom Osborne shows picturesque composition and an effective management of light and dark in his two Wiltshire scenes "Norton Bavant" and "Rye Hill Farm" (9 and 11). Of Mr. Percy Robertson's contributions the best, "The Admiralty Pier, Dover" (23), seems to show French influence, reminding one of M. Béjot's manner of working, though on a different and more ambitious class of subject. Mr. Oliver Hall is admirable in all his contributions, except that etching does not lend itself very well to such a subject as "Storm Clearing on Sinah Warren" (25), another illustration of the difficulty of dealing with sky effects in etching; "Pine Trees on the Edge of the Moor" (24) and "The Fallen Tree" (28), with its suggestion of a ship-building yard in the background, are among the best things in the exhibition. M. Béjot's "Pont St. Louis, Paris" (58) shows this etcher of Paris scenes at his best; in spite of its general freedom of style, the middle distance houses are very carefully lined in so that one can follow out the make-up of the streets. His "Pont Neuf" (58), on the other hand, fails a little in effect through want of any making out of the masonry construction of the bridge, which is close to the foreground, and should appear as something more than a mass of shadow. Mr. Haig shows more freedom and force than usual in his "Cloisters of St. Jeronymos, Bedel" (88), which we prefer to the Santiago Cathedral drawing (98), because it is less laboriously finished; in other words, more of an etching and less of engraving. However, Mr. Haig's preference is for this highly finished architectural work, and it evidently has its demand, and is excellent in its way; but it is not what etching is essentially meant for. Mr. Arthur Evershed shows his usual delicacy of treatment of picturesque little subjects, of which "Barn by the Road-side" (103) is perfect in its way. Then we come to quite another use of the etching needle in M. Helleu's portrait of "Miss K." (108); this is a full-face portrait, and one of the best of his well-known works of this class, in which he has made the most of the fine curving lines of the large hat on which much of the pictorial effect of the work depends. Miss Kemp-Welch's "Barges Unloading on the Deben, Suffolk" (114) is an excellent piece of real etching, in which every line tells. A still better example of the power of leaving out is shown in Mr. E. W. Charlton's small etching, "Regatta Day" (127), where nearly all the work is concentrated on the low line of coast buildings which goes straight across the middle of the picture, leaving sky and water nearly untouched; the small black hull of a steamer in the middle distance just serves, as it were, to suggest the water in an unmistakable manner. This is an excellent example of a kind of subject dear to many etchers and specially suited to the conditions of their craft—subjects in which there are concentrated darks opposed to large spaces of light. One is reminded by it how often and admirably Mr. Frank Short, one of our finest and characteristic etchers, has chosen subjects that can be treated in this way, and we regret not to see his name in the catalogue of the present exhibition. "The Painted Lady" (126), showing the prow and figure-head of a ship in dock, is another good work by Mr. Charlton. A ship scene of another kind gives the opportunity to Mr. Frank Brangwyn for one of the most powerful works in the exhibition, "Breaking up the *Hannibal*" (134); the great old round tub-like ship, heeled partly over on the ground, fills nearly the whole picture, her massive framing, bolts, cat-head and stem being drawn with an evident delight in their picturesque suggestiveness. The same artist's "A Butcher's Shop" (179) is, however, an exaggeration of what is called "force," and is altogether too violent in effect.

Figures are not among the best class of subjects for etching, except merely as portraits of the head only; but Mrs. Merritt has made a pleasing composition of her two angels on each side of "The Narrow Way" (186). Mr. W. Monk is a large contributor; "The Last of St. James's Hall" (197) has historic as well as artistic interest; "The Little Shop with the Dial" and "The Well House (193, 195) are very good; in regard to "The Penny Steamer" (185), if that is meant for Waterloo Bridge in the background, it is wrong in the proportion of the arches, which are too narrow for their height, or too high for their width, whichever way one likes to put it. Mr. C. O. Murray has made an interesting and successful attempt, in "Misty Morning, Venice" (198), at using etching to represent an effect of fog, and showing the Salute church as little more than a silhouette in the mist; he contributes also an interesting view of the temples at Pæstum. Miss Adeline S. Illingworth claims recognition for her effective treatment of architectural subjects; her "Tour du Chœur, Chartres" (211) is a piece of work in which freedom of style is combined with architectural truth, and she also exhibits good illustrations of Barton-street and Smith-square (208, 209). In connexion with these we may mention a good work of the same class by Mr. Sydney Lee, "The Cathedral Precincts" (220), illustrating what may be called the poetry of a back street. Mr. Alfred East shows two characteristic Italian effects in black and white, in "Villa d'Este" (219) and "The Avenue" (222), the latter an aquatint; the element is the same



Entrance Gate, Alnwick Castle.

in both—masses of dark trees against a faint sky light; his "Longpré" (228) is however the finest thing he exhibits here. Among architectural subjects Mr. Walter Burgess exhibits "Bishop Edyndon's Chantry, Winchester" (260), and "Bishop Langton's Chantry" (273) in the same cathedral; but these, though very carefully and conscientiously finished, hardly rise artistically above the level of what may be termed "architectural drawings," good as such, but not of artistic interest in the higher sense.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT a special general meeting of the Royal Institute of British Architects, held on Monday at No. 9, Conduit-street, Regent-street, Mr. Henry T. Hare, Vice-President, in the chair, the Chairman, having announced that the meeting was convened pursuant to by-law for the purpose of electing the Royal Gold Medallist for the current year, moved, in accordance with notice, that Sir Lawrence Alma-Tadema, R.A., be elected for the honour. Whereupon it was resolved, *nem. con.*, that, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be awarded this year to Sir Lawrence Alma-Tadema, R.A., Hon. Fellow.

This concluded the business of the special meeting.

The ninth general meeting (business) of the session then followed, and the minutes were taken as read.

The hon. secretary, Mr. Graham, announced the decease of Zephaniah King, elected Associate 1881, Fellow 1887, and a vote of sympathy and condolence was passed to his widow and family.

On the motion of the hon. secretary, a vote of thanks was passed to the givers of various donations to the library, especial mention being made of Mr. Sydney Smirke, from whom had been received his seventeenth annual donation of 5*l.* to the Library Fund.

The secretary announced that the ballot for the election of candidates to Fellowship had resulted in the election of the following:—

Matthew Garbutt
E. W. Marshall
G. Ransome
H. A. Satchell
H. Sirr
A. Sykes.

The following were elected by show of hands under by-law 9 as *Associates*:—

A. W. Addison (Cambridge)
A. D. Aitken (Airdrie, N.B.)
J. H. De Caynoth Ballardie
J. Boyle (Bolton)
J. E. Braithwaite (Leeds)
S. Bridges
A. E. Bullock
M. Bunney
J. Cocker (Altrincham)
T. T. Cumming (Reading)
E. J. Dixon
B. Drummond
F. Dyer (Manchester)
T. Speirs Fraser (Dumbartonshire)
W. Curtis Green
E. L. Hampshire
G. Hanson (Halifax)
C. H. Holden
A. Hunter (Colwyn Bay)
A. Hay Lamont (Edinburgh)
L. W. Crandall Lorden (Hythe, Kent)
W. K. McDermott
W. P. Marr (Kingsbridge, S. Devon)
D. Mitchell
H. A. Moon
G. Morland
H. Stanley Morran (Auckland, N.Z.)
A. R. Myers (Edinburgh)
A. C. Notley
D. Mary O'Connor, B.A., B.E.
A. J. Peyto
S. C. Ramsey
W. H. Riley (Leicester)
H. Ryle
D. A. Shaw
J. H. Shearer
P. M. Stratton
J. R. Sykes
P. Turner (Bradford)
M. O. Type, F.S.I., Birmingham)
R. F. Wheatly, B.A.
E. C. M. Willmott
L. S. Wood, B.Sc.
H. E. Woodsend (Nottingham).

OLD WHITEHALL.—In the course of the demolition of some of the old houses in Craig's-court, Whitehall, a subterranean passage has been discovered. It extends nearly 30 ft., and runs north to south to within a short distance of the Army Pay office in Craig's-court. There was no entrance to the passage from the houses lately demolished, and at some period both had been bricked up. Tradition says that a subterranean passage existed from No. 2, Craig's-court to the Royal Palace at Whitehall, and that Nell Gwynne at one time resided at 2, Craig's-court. The housebreakers have also discovered a carved water-tank. When reaching the ground floors the workmen cut into three stages of flooring, resting on three sets of rafters.

THE ARCHITECTURAL ASSOCIATION:

PORCHES AND APPROACHES.

THE following is the conclusion of the paper on "Porches and Approaches" read by Mr. F. T. Baggallay at the meeting of the Architectural Association on the 23rd ult., the first part of which appeared last week:—

English Domestic Gothic.

In the last twenty years of the XVth century, when the feudal castle gave way in England to what is not inappropriately called the castellated mansion, the general form of the great gate-tower was still retained; but it was pierced with large windows, and the turrets and machicolations and battlements became attenuated and merely ornamental. A type was thus developed which persisted for more than a century. The turrets, two at first, soon became four for the sake of symmetry. They were almost always octagonal in plan, and straight from top to bottom, except for a slight oversail at first where the machicolations used to be. And as time went on they became thinner and thinner, and the space between them wider and wider. Such gate-towers are always striking features; but the earlier examples, before the turrets had become too attenuated, and especially several in the eastern counties which are built of red brick and terra-cotta and have the added advantage of colour, seem to me the most handsome. The Oxburgh Hall gateway seems to be the earliest of these. The date is generally given as 1482, but, according to the present owner, it was not finished until 1489. The moat and bridge and its height (80 ft.) give it an advantage over all rivals, unless the more ornamental character of some of the detail in the Layer Marney gateway (built in 1500) be held to equalise matters. In point of date the "Deanery tower" at Hadleigh is between the two (1495). In appearance it suffers from too much neatness and hardness of line, and must, I think, have been trimmed up, rubbed down, and

pointed in modern times. It is certainly not so picturesque as the ruin of the Nether Hall gate, now standing neglected in a farmyard. The familiar gatehouse at Hampton Court, also of brick, is a little later in date (1515-1520).

Most of the stone gatehouses of this type, where they belonged to private mansions, seem to have been either pulled down or greatly altered subsequently. There is an example, though rather a poor one, perhaps never completed, at Montacute Abbey, and a very fine one at Knole, near Sevenoaks; where, however, the turrets are square in plan. The best, and by far the richest, examples remaining are some of the great gatehouses to the courts of the Cambridge colleges. The great gate at Trinity, begun in 1535, and the outer gates of Christ's and St. John's colleges, began soon after 1505 and 1510 respectively, are the best. The last two are notable for the fine decorative use made of the arms of Lady Margaret Beaufort Countess of Richmond, who founded them. The three gates to the great quadrangle at Trinity are all said to owe their present form to Ralph Symmons, who had been one of the architects or designers of the second court of St. John's, and was employed, in 1604, by Dr. Nevile, an energetic master of Trinity, to improve his college buildings. But it is unlikely that Symmons much altered the great gate; and King Edward's gate, at the end of the chapel, is said to be an old one which he merely took down and rebuilt on another site. So that the third, or Queen's gate, alone can be properly dated so late as the beginning of the XVIIth century. There is, however, another example of the type in the brick gatehouse of Abbot's Hospital, at Guildford, built in 1619.

The Oxford colleges did not accept the type, but continued to build plain, square, or rectangular entrance-towers with only one stair turret; in general outline more like contemporary church towers, but distinguished by great oriel windows over the arch (instead of belfry windows at the summit). The best of these is the Founder's Tower, at Magdalen. The only Oxford example I can call to mind of a gatehouse with more than one turret is the sumptuous Tom Tower, at Christchurch, as it was originally built by Cardinal Wolsey.

The cases in which a porch was added to a domestic building of the late Gothic period, either in addition to, or instead of, a gatehouse, are rare. And I do not know of any, except the oft-drawn porch at Compton-Wyngate, that is worth notice.

English Renaissance.

The freedom of thought and action, which the reign of Queen Elizabeth brought to the nation, led, among so many other great changes, to a revolt against the prison-like gloom of the old mansion, the small windows and the enclosed courtyards. People called for light and air and an extended view. They built enormous windows, and in the end they left out the buildings on the entrance side of the courtyard, or reduced them to a screen or even a balustrade; and if any gatehouse was erected at all it was an isolated structure. But before that step was taken the porch seems to have anticipated its coming importance, and even in the earliest Elizabethan mansions was strongly emphasised. The well-known porch at Kirby, attributed to Thorpe on what seem fairly good grounds, is an example. It has been greatly admired and severely criticised. To eyes that are educated in the niceties of architectural detail and propriety it is an unfortunate bit of honest English building, tricked out in a coarse parody of Italian details, put on in the wrong way, and in the wrong places. One is apt to find in it a parallel to the finely-made savage monarch, who, according to report, gets hold of a suit of slop-shop European clothes, puts his legs into the arms of the coat, and his arms into the legs of the trousers, wears the hat round one ankle, and puts a saucepan on his head. Perhaps architects, like men of every trade and profession, are liable to take rather a narrow view, and allow the technicalities of their trade to become too much the masters of their judgment. Yet, as architects, we cannot help feeling that the few porches of this date in which Italian detail is absent (of which that of Montacute House is an instance) are distinctly pleasanter than either the Kirby example or the porches, say, at Audley End, where the Classic orders are used with a good deal more knowledge and discretion.

The many porches, too, built at the end of the XVIth century and beginning of the XVIIth—such as those of Ragdale Old Hall, St. Catherine's, Bath, and the Corsham Almshouses—in which a little classic detail is applied as a sort of spice in the lower part round the door—are quite charming. So are many of the half-timber porches of this and the end of the Gothic periods—such as those at Park Hall and Moreton Old Hall, and the porch of the Old Guildhall, at Lavenham. English porches of a later date, though the detail may be unimpeachably correct, are apt to be formal, unimaginative, and uninteresting. The Westwood porch is a not unfavourable example. The same criticism may, with some show of justice, be applied to the great porticos which may be found in every town, and which are built in imitation of the porticos of Roman temples. But the lofty and serene majesty of such a composition, when it is proportioned and detailed with care and knowledge, makes it peculiarly suited to the approach of a great public building, and one would be sorry to lose it in such situations.

When the enclosed courtyard of the late mediæval mansion was opened out by the omission of the buildings on the side of the gate-tower, and the place of the latter was supplied by a gatehouse, either entirely isolated or forming part of a low screen or connecting corridor, the gatehouse assumed a greater variety of form. The Tixall, Burton Agnes, and Charlecote gatehouses still have angle turrets; but at Charlecote the proportions have already become broader and lower; and at Old Toddington and in a variety of other instances the turrets were omitted, and the gatehouse was but one story high with a tendency to dissolve into a gateway flanked by small lodges. This is actually the form of the curious and rather ugly example at Westwood, Gloucestershire. The gatehouse was replaced in some cases by an arched gateway of ornamental character, such as that at Cold Aston Manor, or the curious, elaborate, rather pleasing gateway at Caius College, Cambridge, called the Gate of Honour. Later examples of such gates are to be seen in the old Somerset House gateway now in the Embankment Gardens, London, and the gate to Queen's College, Oxford. Sometimes there was a gatehouse and screen to the main courtyard as well as an architectural gate-arch or gate-piers to an outer court, as at Rushton. Gate-piers became in the end far more general than the arch, and are usually joined by more or less elaborate, and often very beautiful, wrought-iron gates and grillwork, rising at the top into a light gable of scrolls and foliage, among which the arms or monogram of the owner are generally introduced. The arms are also frequently to be seen on the outer face of the piers, the finials of which are generally the crest, a vase, or a ball. The balls are said by some people to be properly the gruesome emblem of a lord of a manor; since they represent the heads formerly exhibited at their gates by those who had the power of life and death. Some of the best of the innumerable examples of both piers and ironwork are to be seen at Cambridge, at the entrances to the colleges from the Backs. There are many good examples, too, even in the heart of London. The gateway to Staple-inn from Chancery-lane and several of the piers on the west side of Lincoln's-inn-fields are examples which occur to me.

I have already spoken twice of the great charm of an approach over a bridge. This, too, is to be seen to perfection in the back approaches to the Cambridge Colleges, particularly at Clare and St. John's, where you advance, between handsome balustrades; in the one case towards a vista of courtyards seen through arched gateways, and in the other to the stately gate-piers and iron gate at the bridge-end. I have attributed the charm of bridges in part to the water; but the confinement of the approach between the parapets or balustrades of the bridge has perhaps as much, or more, to do with the matter. Many an old house is approached by a bridge over a moat which is now dry—Speke Hall is an example—and the absence of the water does not entirely do away with the charm; indeed, it seems to leave the greater part. In connexion with bridge approaches generally I cannot resist showing a view of a little Japanese shrine at Osaka erected in the water and reached by a characteristic wooden bridge.

Italian Renaissance.

Bridges, however, can only be made part of an architect's scheme by such fortunate accidents of situation as are rare. We want other suggestions. And we may find them, as abundantly as anywhere, in the works of the Italian Renaissance architects. They favoured small projecting porches as little as their predecessors, and were not very successful with them. That of the Miracoli Church at Brescia is the most favourable example I know, but it owes a good deal of its charm to the fact that its lines are of the simplest; and the delicate carving, with which the lower part is covered, is in such low relief that it is almost lost in the bright Italian sunlight. The porch of the hospital at Venice, a Renaissance version of the old semi-circular hood on two legs, is florid and tasteless. By instinct and tradition the Italians seem to have preferred something that did not break the front of the building, and, if not content with a mere doorway, generally either recessed the porch within the front or built a portico that covered it. The little portico of the Pazzi Chapel at Florence, which is chiefly celebrated in guide-books for its barrel-vault of Della Robbia ware, illustrates these ideas, and also the delicate beauty of cinque-cento detail. The upper story, with its imitation of wooden panelling, may be open to technical criticism both on that ground and because it looks too heavy for the columns. But one would gladly commit graver errors to produce so good a result. The arch rising in the middle above the entablature deserves a note. It reminds one of some of the late Roman porticos in Syria and the narthex at Civita Vecchia, and may be borrowed direct or by tradition from late classical work. One wonders whether it was possibly the germ from which the great arched recess in the portico of St. Andrea at Mantua grew, or whether Alberti borrowed the idea of the latter from the Mahommedan mosques, or possessed some tradition of such entrances as that to the palace at Ctesiphon. There seem to me to be great possibilities and suggestiveness in these great arches rising almost to the height of a building and deeply recessed into it. Broad, deeply-recessed porches are the rule in the Venetian palaces, where they are necessary to form a landing-stage, since the water comes up to the front wall of the building. But the similar porch in the garden front of the Villa Medici at Rome was a matter of choice. Here there is again the arch rising above the entablature over the middle opening: and further suggestiveness in the arrangement of the steps and balustrades; which rise from either side to a landing bowed out in front to hold a small fountain.

The broad and deep "loggia" which forms the porch to some Italian villas is a feature common to all countries where shade from the sun is necessary, and modern "piazzas" and verandahs probably owe little or nothing to Italy, where it is commonly better designed than elsewhere. The one at Arezzo is a characteristic example especially in the great projection of the eaves, the generally light and open treatment, and the freedom of the architectural detail. There is sometimes an upper story, still lighter and more open.

The Italians have never given up the enclosed courtyard plan (unless they have done so recently); partly no doubt because peace and security were so long strangers to the country; partly because the difference between their climate and ours, if not very great, is sufficient to make an enclosure, which on most days seems cold and gloomy here, for more than half the year in Italy a cool and shady retreat from glare and heat. As a consequence, the entry to an Italian palace, or even a house of any pretension, is most frequently through a vaulted corridor to the courtyard in the first place. Plenty of such entrances, of course, are still to be

seen in this country. We even built a very pretentious one to Somerset House not much more than a century ago. But here they more often repel the passer-by, by their suggestion of darkness and dirt, than invite him by their shade. In Italy the reverse is the case, and there are few more pleasing features of the great Italian palaces than the dark entrance which frames a picture of a brilliantly-lit courtyard. The entrance to the Farnese Palace at Rome, of which Mr. Potter has obtained such an excellent photograph, is a good instance of this. The view of the entrance to the Doge's Palace at Venice (which is also from one of Mr. Potter's photographs) is perhaps less striking in one way owing to the light coming in from the side. But the view of the giant's staircase beyond more than balances the loss of the dark shadow.

Outside Staircases.

The giant's staircase is, as you know, the main entrance to the palace, and is strictly in accordance with Italian tradition. From a very early date, what we should call the ground floor was, in Italian palaces and public buildings, a basement devoted to cellars and offices; and the state entrance to the building was by a grand flight of stairs, in rare instances direct from the street, more often from the courtyard. There are XIVth century examples of the former arrangement at Perugia and Todi in the entrance to the town hall in each case. There is also a stairway entrance, probably of rather later date, direct from the street to the principal floor of a small house at Viterbo, which is a favourite subject for a sketch. That and the rather similar stair entrance from the courtyard in the Bargello at Florence are guarded by gates halfway up the stairs, a feature that suggests exciting moments in the history of the building. External stair entrances in the courtyards are common in the older palaces; but, though generally picturesque, are not often architecturally important or especially well planned. But in the later Renaissance palaces the stair approaches are generally laid out with great care and ingenuity and with an obvious and successful intention to make the most of them. Mr. Lewis has lent me two illustrations from the *British Architect*, which are reproductions from Piranesi's great work, and show what he thought might be made of stair approaches. The works actually executed naturally fall a good deal short of such ideals, but they are well worth the most careful study.

I believe the only examples we have in England of external staircases to upper-floor entrances—such as those at Wanstead House and Keddlestone Hall—were built in the XVIIIth century in imitation of the Italian palaces. German castles and public buildings of the Renaissance Period were however generally entered like the Italian ones at the first-floor level. Unfortunately the men who designed the means of access wanted the finesse of the Italians. The planning is crude, and the architectural detail is coarse, and sometimes grotesque. But the unrestrained freedom of ignorance, combined with an abundance of native wit and wild fancy, produced results which are frequently pleasing and suggestive of possibilities to the architect in search of ideas. The rathhouses at Halberstadt, Lemgo, Lübeck, Heilbronn, Molsheim, and Görlitz, and the castles at Trausnitz and Hartenfels all have external stair approaches that are worth studying.

Steps and Balustrades.

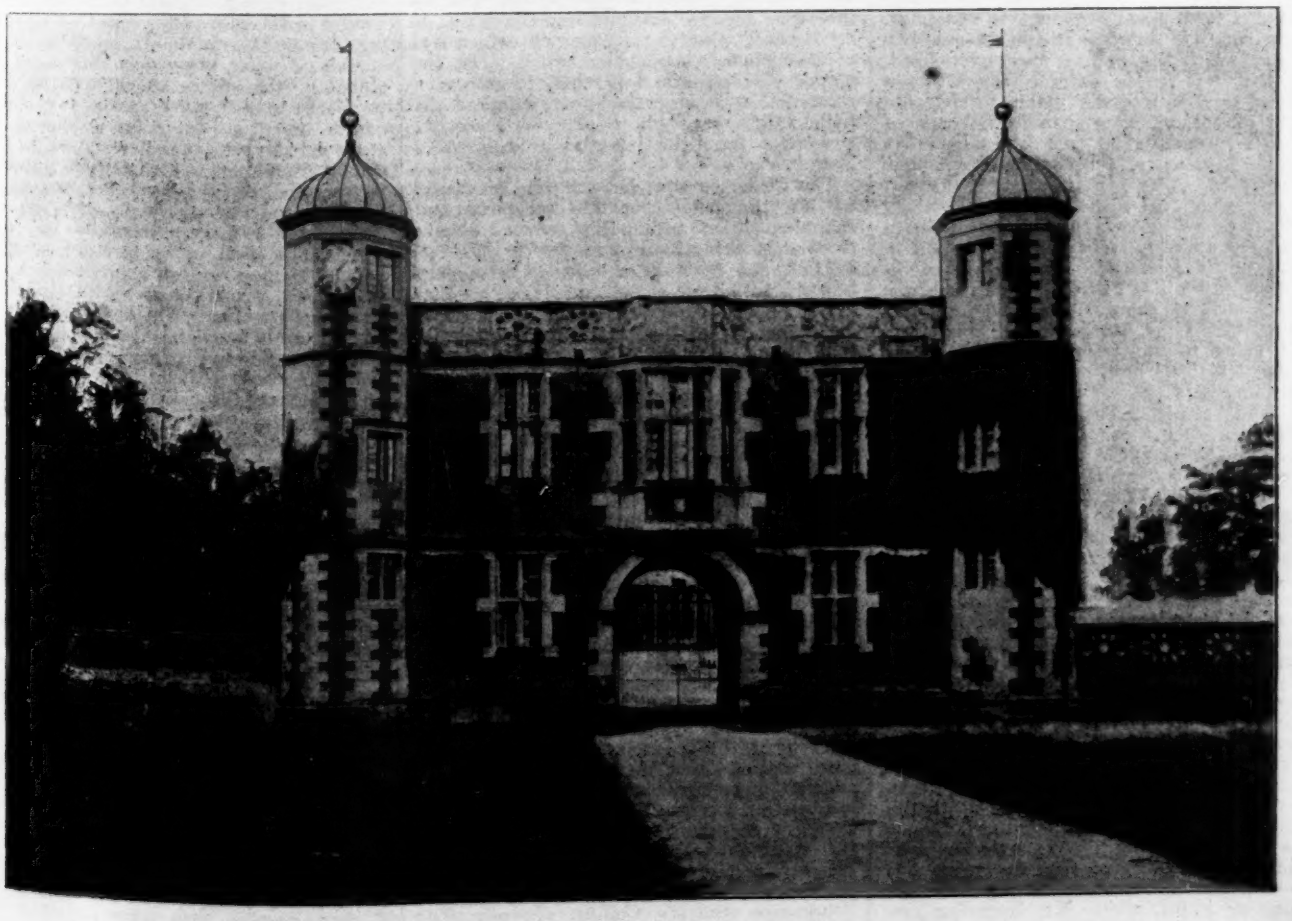
Such external staircases, I think, must be distinguished in our minds from the flights of steps which lead up to first-floor entrances in some few modern public buildings, such as University College. Such flights are probably borrowed direct from the Roman temples. And they must be distinguished, too, from the short flights and long terraces with their balustrades which form such an important feature of the approaches to the palaces and great houses of the later Renaissance in all European countries. The tendency of the latter is to breadth, of the others to concentration. The value of such terraces is recognised by everyone when they are used on a great scale, and no doubt is due to the long horizontal lines of regular ornament afforded by the balustrades broken at regular intervals by piers, perhaps with vases on them, and at longer but still regular intervals by the steps. But I do not think it is fully recognised how great an effect may be produced by a single flight of such steps and a little bit of balustrade when treated in a broad way. I have put on the wall a photograph of a very commonplace house, Draycott Manor, which seems to me to have been redeemed from ugliness by such simple means.

Courts and Screens.

But a great public building, a great church, or even a great house, calls for a more spacious approach with a more imposing architectural setting than a terrace and a balustrade. A courtyard of liberal dimensions and an architectural screen are, in fact, essential in such a case. The screen should be high enough and close enough to give the sense, as well as the reality, of enclosure, without either dwarfing the main building or shutting out light and air. The most satisfactory approach on the whole to any building in the world is the great square before St. Peter's at Rome, with its double screens sweeping round in two great semicircles at the sides. The only reproach it is possible to level at it is that it is too vast for the eye to take in as a whole. I rather suspect that Vanbrugh must have had those semi-circular screens in his mind when he contrived the front of Blenheim with its two quadrants; and the plan of the courtyard at Seaton Delaval Hall, enclosed on three sides by screens which terminate in little pavilions and leave the front open, has also some suggestion in it of the same origin. The architecture of the Seaton Delaval screen is heavy, like all Vanbrugh's work, and not well suited to such a feature. The best screen enclosing a courtyard that we have in London is the one in front of the Admiralty in Whitehall. It was even better before it was altered. The plan of using the screen to close the fourth side of the courtyard, the other three sides of which are formed by the building, is typically English, derived of course from the late Elizabethan house plan.

Conclusion.

I should like to have commented on a number of other branches of the subject and particular instances. I have neglected altogether the vast and prolific field of Mahommedan architecture; to say nothing of the Native Indian, Russian, and Chinese, from which some apt and curious illustrations



Entrance Gate Charlecote, Stratford-on-Avon.

might be drawn; and I have dealt very superficially even with French and German work. I meant to have noticed some approaches which are beautiful, as it seems, by accident, and others that are curious or eccentric. I should like to have called attention to some successful modern work. But the paper is already far too long, and all that must, for the present at least, be left unwritten."

Mr. Walter Millard, in moving a vote of thanks, said he felt as though he had been taken headlong through the whole history of architecture. In an hour and a half they had gone through some 4,000 years, at any rate; and still, as Mr. Baggallay said, there was much left unnoticed. As to the objects of these inclosed approaches, shown in the earliest examples, it was a commonplace to say that they were based on utility to start with; whatever architecture resulted was got out of the feature after the requirements of utility had been satisfied. What we called the architecture was what the useful man did out of his head after he had schemed what was really wanted. Regarding the "Paradise" example referred to by Mr. Baggallay, he thought that this was a mediæval term for a special enclosure. And, as to the porches at Chartres, he preferred the north porch to the other; the north porch did not have its gables separated by pinnacles running up between them. It was pleasing to have a review of porches in our own country, not only of church porches, but of domestic examples also. There was a tendency to think that nearly all our mediæval work was church work. We read in books that Gothic architecture was church architecture, and so on, but, he supposed, there was nearly as much secular work done in proportion to church work—then as now, and there was no essential distinction between the two.

Mr. A. Needham Wilson, in seconding the vote of thanks, said they had had a most interesting and instructive evening, and Mr. Baggallay must have taken an enormous amount of pains in the preparation of his paper. If anything, he had covered too large a field for consideration in one evening, but he had given a great deal of matter for thought. He did not altogether agree with Mr. Millard that the origin of these approaches was a utilitarian one. In many instances they arose, he thought, from the fact that there existed a wish to add dignity to buildings. There was one instance of this in our own country which had perhaps been overlooked, and that was in the extraordinary "pagan temple" at Avebury, in Wiltshire, which consisted of nothing more than huge lumps of stone set upright in the ground, much anterior in date to Stonehenge. The temple formerly had miles of approach to it, flanked by such stones set up in the ground, which could have served no other purpose than to lend processional dignity to the approach to the temple. Another instance occurred in Norfolk, in the Fen district, where there was a very striking church tower standing bare almost, above the flat land, and where the road going in the direction of the village appeared to have been purposely diverted in order to give a vista of this church tower at the end of it. There was no reason apparently why the road should not have gone straight, except in order to give a good view of the tower. He was interested to see the arch at Khorsabad, for they were taught in the old days that the Romans invented the arch. Could Mr. Baggallay tell them whether the arch was constructed with voussoirs? Mr. Baggallay dwelt in a most interesting way on the advantage given to approaches by bridges. He (the speaker) might mention the extremely interesting and clever manner in which Mr. Lutyens had dealt with that in his most interesting house at Sonning. He had no water, but he obtained it by providing a circular pool, over which he put a bridge, approached by steps, for no other reason than to give dignity to his entrance. Architects now appreciated the necessity of dignity in the approaches to their buildings, though in a 1,000*l.* house the problem was generally a difficult one, but even then they were glad to win the client from a love of the serpentine walks, which Mr. Baggallay condemned, to an appreciation of the quiet dignity of the straight flagged path and nicely-kept green lawns on either side.

Mr. Francis Hooper said he hoped that Mr. Baggallay would treat the subject as illustrated by Indian architecture at some future date, for he had given that evening a most interesting and suggestive discourse. Mr. Baggallay had not, he thought, used the word "mystery," or referred to that element of mystery which a screened approach secured. An archway afforded a limited view of the prospect beyond, and provided the necessity for coming suddenly upon a building or a view which had been framed or concealed, and so enhanced one's appreciation of what lay beyond. One saw that in the case of the south-west gateway at Canterbury, for if one approached the cathedral that way one saw it suddenly and almost with surprise. The framing of the view at Canterbury was enchanting, and this element of mystery was provided by such screened gateways as were found at York, Chester, and elsewhere.

Mr. H. Gregory Collins, in supporting the vote of thanks, referred to the papers read before the Association this session, and congratulated the Committee on providing such excellent papers as those read by Mr. Gotch, Dr. West, and Mr. Baggallay. After hearing Mr. Baggallay's paper, one felt quite travelled, especially as they had seen such a fine collection of illustrations. As to the approach to Buckingham Palace, he did not think it would be a success architecturally. The memorial to Queen Victoria would soon rise in the centre bed opposite the palace, which looked so pleasant in summer, and the palace would be but a poor background. Besides, he did not quite appreciate the idea of the planning; a procession would not be able to go straight up to the palace, but would have to bend and turn. The porch of the Guildhall at Exeter was not mentioned by Mr. Baggallay; it is in the High-street, on columns, with superstructure of half-timber work. Exeter had another interesting gateway—*i.e.*, at the entrance to the old Rougemont Castle, built in red sandstone. There were many instances in London of porches which one might see. As a recessed porch he thought the one at New Scotland Yard might be followed, though it might look a little cramped by the steps taking up almost the entire room in the porch itself; it might have looked better with more landing space at the bottom and at the top. Another example was the porch of St. Michael's Church, at Chiswick, which was a good example of modern work. In the matter of screens and porches, there was a great deal to learn. He always admired the little lodges at Hyde Park, and especially the lodge from the inner ring to Regent's Park.

The Chairman then put the vote of thanks to Mr. Baggallay for his scholarly and charming paper, adding his personal thanks for a most enjoyable evening.

The vote of thanks having been very heartily agreed to,

Mr. Baggallay, in reply, said it seemed to be a reproach that he had travelled too far that evening, whereas he expected to be criticised for leaving out this and that. And it really was as he anticipated, for those who had spoken had referred to examples which he had omitted. He agreed with Mr. Millard that it all started in utility—was not that what all their work started in? The making it into architecture came afterwards. Mr. Wilson took him rather out of his depth when he spoke about Avebury, for he did not know that it was determined that there had been even a temple there. Probably Mr. Wilson was right, but he was not aware that anyone professed to know exactly what those stones, etc., were. After all, if the long lines of stones were approaches for ceremonial purposes, did not they start in use? The ceremony was the thing; not the approach. As to whether the arch illustrated in the book by M. Place was built in voussoirs, there seemed to be no question that it was arranged in voussoir fashion, and he thought he recollected seeing in books illustrations of similar arches built on the voussoir plan in the Assyrian period. He appreciated Mr. Hooper's remarks about screened approaches; he had overlooked the point. He did not quite agree with Mr. Collins, who seemed to object to the possible breaking of a procession round the statue in the processional road leading to Buckingham Palace. He (the speaker) rather thought it was an improvement not to have an unbroken line. But to have it going round something. If the road were long and straight it would be less interesting than if it were broken in the middle. That was one of the great objections he had to the way in which our streets were managed in London. Everything was given up to a straight line for the traffic, and one never got a nice break in a cross-road where one might put up a statue.

The Chairman announced that at the next meeting on March 9 the paper would be by Mr. Gilbert H. Lovegrove on "The A.A. Camera and Cycling Club Excursions," illustrated with lantern views, Mr. A. Vye-Parminter being unable to contribute his promised paper.

THE MEASUREMENT AND FLOW OF WATER.

On the 20th ult. a meeting of the Institute of Sanitary Engineers was held at the City and Guilds of London Institute, Finsbury, E.C., when the Presidential address, by Professor E. G. Coker, M.A., D.Sc., was read. The title of the address was "The Measurement and Flow of Water," and in the course of his remarks the President said that the manner in which water flows and the circumstances which influence its movement were only fully investigated by Osborne Reynolds in 1883, although forty years before Sir G. Stokes discussed the matter and pointed out the general causes which make water change the character of its motion from direct or stream line to eddying or sinuous flow. The unrestricted flow of water from a small circular orifice in a tank was essentially direct, each drop of water moved at the same velocity as any other in its neighbourhood, and a colour band when introduced remained in general unbroken. If, however, the water was caused to move through a pipe the motion was essentially changed; the principal part of the flow now occurred about the centre of the pipe, and died down to nothing at the sides. That liquids do not slide over solid surfaces in contact with them was abundantly clear from the experiments of Whetham, who had shown that even with tubes of capillary bore there was no slipping at the boundary of the tube, and other examples might be given of similar results in the case of the hull of a ship moving through the water. In practical cases the motion of water was rarely direct, and consequently the eddies which arise make the resistance to flow much greater than if these eddies were absent. Observations of the mean velocity of the water and of the head lost in friction showed that while the motion remained direct the head lost was proportional to the velocity simply, but with eddy motion the resistance increased very much more. The effect of temperature on the resistance to flow was an appreciable one, and was much more marked for direct motion than for sinuous motion. The increased resistance due to bends had lately been the subject of much research by Williams and Alexander, and their results brought out very interesting facts that the bend of least resistance was one having a mean radius of about two and a-half times the diameter of the pipe, and that the resistance of the bend was about three and a-half times that of a straight pipe of the same length. The need for the automatic measurement of small quantities of water had led to the invention of a large variety of meters of varying degrees of excellence. For very large flows weir measurements were usually adopted. In some cases the weir method was not convenient, especially when it was required to measure the discharge of a pipe without the loss of the pressure head, and in such cases a form of meter, invented by Herschel, had been used with very great success. The name of "Venturi" had been given to it in honour of the Italian philosopher who first investigated the flow through cones, rather more than a hundred years ago. The meter was extremely simple in construction, consisting of a short cone inserted in the pipe line at a convenient point, with its narrow end pointing down stream, and merging into a short parallel neck connected to a long cone, which swells uniformly until it reaches

the diameter of the main again. The arrangement therefore involved a sharp constriction of the pipe, causing a comparatively high velocity through the neck, which gradually falls back to the normal velocity in the down-stream cone. The high velocity of the liquid through the neck was accompanied by a considerable fall of pressure, in some cases below that of the atmosphere. Experiment shows that the flow through the meter per second was very accurately expressed [by] the formula $q = c\sqrt{h}$, where the head h was taken as the difference between the water columns attached to the meter, at the point where the water enters, and at the throat respectively, while the constant c was calculated from the dimensions of the meter and the gravitation constant. The accuracy of the formula for large flows had been tested by the inventor for discharges through a 1-ft. pipe, and also a 9-ft. pipe, and it was found to agree remarkably well with independent measurements of the discharge. Experiments on small flows in a pipe of about 1½ in. diameter showed similar results. Usually the meter was used in conjunction with a recorder in which there was a meter for sewage connected by pipes to two water columns containing floats. Besides its application to the measurement of the discharge of water main pipe lines, the Venturi meter had been used for many other purposes. One interesting application was for the measurement of sewage, and at the present time meters for this work are in use in several countries.

THE SANITARY INSPECTORS' ASSOCIATION:

RURAL HOUSING AND BUILDING BY-LAWS.

ON Saturday, March 3, at Carpenters' Hall, London Wall, E.C., Mr. T. C. Barralet, Surveyor to the Rural District Council of Godstone, addressed the members of the South-Eastern Centre of the Sanitary Inspectors' Association on the subject of "Rural Housing and Building By-laws." He said that since Mr. Justice Grantham's famous case with the Chailey District Council the subject had assumed a magnitude in the eyes of the public only second to the great political questions of the day. Sanitary inspectors, from the very nature of their occupation, were the best qualified to express an intelligent opinion upon the subject, and, as an old inspector, he wished to treat the question mainly in regard to those aspects in which it affected the daily work and duties of inspectors, rather than from the sentimental, financial, or asthetic standpoint. There was no doubt that we had been faced for some time with a peculiar phenomenon in our rural districts. Side by side with a steady diminution of population we had the anomaly that there were not enough houses for the people to live in. On the other hand, the last census returns indicated that the number of persons per house was less than ten years before—proving that conditions were not getting worse, but, taking the country as a whole, were rather better. Nevertheless, it could not be denied that in many rural districts overcrowding to an outrageous extent existed, insanitary cottages were the rule rather than the exception, and local authorities persistently neglected their statutory duties in enforcing the provisions of the Public Health Acts. It was equally patent that the ordinary laws of supply and demand would not stimulate building in purely agricultural districts, for the sufficient reason that a wage of 14s. or 15s. a week did not allow an adequate margin to pay a reasonable return on the outlay of capital involved in building the cheapest cottage. Low wages meant low rent, which, in turn, meant low interest. When they heard of country cottages being let at 1s. 6d. or 2s. a week, that sum frequently represented a return of perhaps 2 or 3 per cent. on the cost of the cottage. The rent, in fact, represented the amount of discount the labourer was able to afford from his wages, and had no relation to the cost or size of the dwelling he inhabited. That was especially so in the case of cottages attached to farms. Such dwellings were, to all intents, an appanage of a farm as much as the stables and cow-sheds. The occupants were not "tenants" in the sense of town-dwellers. Tied cottages were really a grant in aid of wages, and they were really the bane of most rural sanitary inspectors. As a rule no claim could be made on the owner as the cottages were included in the tenant's lease. A vast improvement would be effected in this class of rural dwellings if landowners could be induced to retain cottages in their own hands instead of farming them out. From a financial point of view there were few inducements to a builder or owner to erect dwellings in rural districts; the rustic labourer's requirements were simpler, but his dwelling probably cost a good deal more to build than that of his town brother. He was not content with a two or three roomed tenement, and wanted a good garden, an outdoor wash-house, and an interior accommodation, which in towns would command a rental of 7s. or 8s. a week, for less than half that sum. True, the price of land and labour was cheaper, but the extra cost of materials and carting more than counterbalanced those advantages. Clearly, then, little help could be expected from private enterprise to make good the acknowledged shortage, except it be in the form of philanthropy. It would be generally admitted that it was to the best interests of the State that a large proportion of its citizens should be born and reared to rural pursuits, and that everything which tended to discourage the provision of healthy homes was to be deplored. Political economists of one school told them that to nationalise the land would stimulate rural life. Others recommended small holdings and peasant proprietorship, while others, again, advocated municipal action. Of late years there had been a pretty unanimous chorus from landowners and architects that the building by-laws adopted by rural district councils were the great stumbling-block to the provision of proper cottage accommodation, and it was to the examination of this plea in relation to the work of sanitary inspectors that he invited attention. Rural England received its sanitary charter in 1875, but no powers were conferred then to make building by-laws in any rural district. But by sect. 157 of that Act the Local Government Board might give such powers, and for the guidance of the local authorities a model series of by-laws was issued by the Local Government Board in 1877. Having passed in review these by-laws, Mr. Barralet remarked that it would generally be conceded that those by-laws were sound and reasonable from a health officer's point of view, and were calculated to secure the erection of healthy dwellings. The work of the sanitary inspector was, without doubt, materially assisted in places where they had been enforced. They did not prevent any "jerry-building," but confined it to narrow limits, and, although they contained many anomalies, they had done much for the improvement of all classes of buildings in the country. Up to a few years ago little complaint was heard of the hardships inflicted by the building regulations in rural districts, but, since they had become more universal, a vigorous agitation had arisen, having for its object their total abolition, or whittling them down to such an extent that they would have no control over structure above foundation, and would merely enforce what were called sanitary regulations. It must be confessed that many rural districts had taken advantage of their position to enforce requirements which were quite out of place in a rural, and of questionable utility in an urban, district, such as rooms 9 ft. in height, and party-walls being carried above the roofs. The Local Government Board were much quicker to yield to pressure than was usually supposed, and in 1901 they issued their Rural Model By-laws, with a recommendation to rural councils to adopt them for those parts of their district to which they appeared suitable. This latter model had much to recommend it. It insured at least a solid foundation, a damp course, and efficient drainage. The walls and roofs might be of any material, no concrete was required over site, the windows might be of any size and fixed, brick floors might be laid upon bare earth on a damp site, and the walls built of the most porous materials. For a detached house with plenty of land such by-laws might be sufficient. It would, of course, be possible to build a very damp and insanitary house complying with those regulations, but there was at least the satisfaction that it had a foundation, and a damp course and drains. From a sanitary inspector's point of view his work was likely to be largely increased if the rural model were adopted generally in place of the urban model. Dealing with the opponents of by-laws, Mr. Barralet said that imagination failed to picture the orgie of "jerry-building" and slum creation which would occur in some districts termed "rural" if Lord Hylton's measure of last session had become law. The policy of the Local Government Board was, without doubt, in the direction of weakening rather than strengthening the hands of local authorities in dealing with buildings, and almost every objector who appealed to them received a sympathetic hearing. The Board had clearly been convinced that the building by-laws acted as a deterrent upon cottage building in country districts, but his own experience did not confirm that assumption. Over a large part of the country there were no regulations of any kind, and yet the house famine was just as pronounced in those parts as in the others, so that the absence of any check did not stimulate building. The district which he represented comprised fourteen parishes in the south-east of Surrey. Up to a year ago the urban model was in force in eight of those parishes, and the remainder were without by-laws. Yet nine-tenths of the building took place in the parishes with the regulations. He was of opinion that building by-laws were necessary all over the country, and that they should be essentially the same for urban and rural districts. Mr. Barralet then proceeded to deal with the administration of the by-laws in detail, and at the conclusion of his paper there was some discussion.

CARPENTERS' HALL LECTURES:

THE RELATION OF ARCHITECTURE TO HISTORY.

THE third of the present series of lectures on matters connected with building was delivered on the 1st inst. at Carpenters' Hall, London-wall, by the Right Hon. James Bryce, M.P., F.R.S., on "The Relation of Architecture to History," the chair being occupied by the Right Hon. Lord Tweedmouth, P.C.

The lecturer said that architecture was one of the very oldest of the arts, and also one of the most necessary. It had a scientific side and a practical side; it was needed for the purposes of our life; it could be carried out by the methods of science, and yet it had also got a side which belonged to imagination and taste. It existed not merely for practice, it existed for beauty, delight, and it had, perhaps more than any other art, the interest of combining the two elements of beauty and utility in everything it did and in every step of its advance. Architecture, as embodied in the works it produced, became a part of the life of every nation—a part of its practical life, a part of its intellectual and æsthetical life. The architect studied it for a practical end, in order that he might erect buildings which were needed for some immediate practical purpose; but he would understand better the principles upon which he worked if he had a general view of the relation which his science and art bore to life—that was to say, if he understood how the practical element and the æsthetic element were both to be blent to give satisfaction to practical needs and to the demands of taste and feeling; and he would better understand the styles of art—the lines which the development of a building ought to follow, the harmony of its parts, the appropriateness of every part to a general end—if, in studying the models which the past had bequeathed to us, he understood what were the causes which formed and moulded the invention and the taste of those who had gone before us. No architect could understand even the buildings and styles of our own time, much less those of the past, unless he understood the causes at work in the past, which gave to every building its particular style.

The causes which had affected the development of architectural styles had been of many kinds. A good deal was due to materials; where wood, for instance, was the common material, that gave a certain character to the architecture. Different kinds of stone, or the absence of stone and the use of brick, had also made great differences in the styles of architecture, as also did climate and light. But with those particular causes of the development of different styles in building he was not then concerned; he was, however,

intending to deal with other causes which influenced architecture—*i.e.*, the needs of each particular people at each particular time; their taste, and the circumstances which existed at any given epoch. These were the factions which determined the form which buildings took: the needs, the tastes, the resources of each successive age and people were expressed in their buildings. They were the permanent evidence of what a people were. No evidence was so good as that of a building. Tradition might err, records might be falsified, but a building told its own story; it was incontestible evidence of what existed at the time it was produced. It had been the practice in recent years to restore buildings, which constantly meant the destruction of the original character of the building and the substitution of something which the modern restorer thought was better than what the ancient architect did. We did not desire that buildings should fall into ruin—that was the very end one sought to avoid—but we desired to preserve the truth of a building.

The subject of the relation of history to architecture had two aspects. They might look at it from the side of the light that history threw on buildings, and from the way in which buildings illustrated history. Mr. Bryce then proceeded to give a few instances in which history explained the features of a building—that was to say, where they would be puzzled by the features which a building presented if they did not know the history of the times when it was produced. Mr. Bryce then dealt with the uniformity of the style of the Greek temples from the very earliest temples down to the Greek or Roman temples of the IIIrd or IVth centuries, and said that after eight or nine centuries it was remarkable that there should be the same type of temple prevailing over the whole Greek—afterwards the Greco-Roman—world. What a contrast that was to the changing styles of mediæval Europe from the Xth to the XVIIth centuries. The explanation of this contrast was easily obtained from history. The Greek temples were all beautiful externally and plain and uninteresting inside, and that pointed to worship, such as there was, outside; and that kind of worship was continuous and uniform from the time when we first get our light on Greek architecture down to the Greco-Roman period. The early style became sacred, and it never occurred to any architect to deviate from it. That was one reason, but there was another: the Greeks were pre-eminent for their taste and creative power amongst the nations of antiquity: they were immeasurably superior to any of the people, except the Egyptians, with whom they came in contact, and with the fall of Egypt at the time of the Persian conquest the Greeks stood alone. That being so, there was no influence to come to them from outside, as the other nations had not a creative power or artistic taste. The Greeks remained pre-eminent, preserving all their ancient forms, because they did not receive any impulse from others. On the other hand, there was much in mediæval Europe to bring about change and differences.

Again, as anyone who travelled in the Eastern world could see, dull uniformity was the characteristic of the buildings of worship of the orthodox Eastern Church; but in the Western world there was a great diversity in the forms of the churches. What was the explanation of that? It was, he believed, due to the fact that the orthodox church of the East became petrified, so to speak, at a comparatively early period; there was a stagnation of its intellectual and æsthetic powers, which prevented its growth in the way in which the Western world was developing during the same centuries. As the literature and art, thought and theology, were petrified, so also was its architecture, and there were not those creative minds working in the Eastern world that there were in the West. The historian of Eastern architecture would not be able to explain this dull uniformity if he did not know the history of the Eastern church. Even outside the orthodox Eastern church—in the churches of Armenia, for instance—people built to-day in the way they did in the IIIrd century. Constantinople was the centre, and it set the type, invention and development being checked and ultimately paralysed.

Another illustration Mr. Bryce gave was the castle architecture of our own country. Whoever studied the castle architecture of our own country must have been struck with the difference between the buildings of defence in the different parts of the United Kingdom. In England we had large and splendid examples, often with a great deal of architectural beauty, and their erection cost a great deal of time and money—such castles, for instance, as Conway and Carnarvon, Rutland and Pembroke, Bodiam in Sussex, and the castles of Northumberland, although they were a little ruder. Across the border, the castles of Scotland, though fine, were ruder and simpler than the English ones, and in the western parts they were bare, rough towers. In Ireland this was more evidenced; as a rule they were still ruder—except those built as the result of the Anglo-Norman invasion—and this was true also of the castles on the western coast of Scotland. An architectural traveller who knew nothing of the history of Great Britain and Ireland might be puzzled by this contrast, but as soon as he understood the history of the country he would realise the cause. There was plenty of money in mediæval England, and the great lords found it worth while to build fine castles for themselves and their retainers. The same was true, to some extent, in eastern Scotland, where the great lords built in a comparatively beautiful and sumptuous style; but in western Scotland and Ireland the chiefs were poor, or lords of small clans, and with no means of building castles that would do more than supply the absolutely irreducible minimum of comfort and convenience to themselves and their vassals. When one understood the social and economic conditions prevailing from the XIIth to the XVIth centuries, one understood why there should be these differences in the castles of the country.

Then as to how architecture illustrates—*i.e.*, where the historian, who knew the history of the country, was able to learn and confirm his views and illustrate his conclusions from the facts which architecture supplied. One of the great values of the study of architecture was that it went back to the ages from which we had little or nothing in the way of records. The art of building considerably ante-dated written records. Written history was comparatively modern, though, of course, architecture was modern relatively to the progress of the human race. Even in Egypt, the country in which were the oldest architectural remains, it was evident that they had civilised history before the great buildings we admire were produced.

Architectural products of primeval, prehistoric times were the most valuable evidence of the social and economical state of the nation. Take Egypt; anyone looking at the gigantic piles erected there—the great Temple of Karnac, the Pyramids—would see that the country which produced such works must have been a wealthy country in which there was a settled order and government, and where there was a large command of slave labour. Again, take Mexico. When the Spaniards conquered Mexico they arrested its civilisation, and it was a great misfortune that they did, for it would have been curious to see how that civilisation developed independently of the influences of the world. The Mexicans were just beginning architecture in the proper sense of the word. The Mexicans had gone some way with decoration, but very little in the way of creating proper stone buildings of a well-marked architectural style, but there were evidences that they had gone some way towards becoming an artistic people—*i.e.*, in the great taste they showed in the figures they carved. Primitive man could not produce a fine temple or a distinct architectural style, but he could produce decoration, and could advance to a considerable degree of skill and taste in the production of such work. Architecture showed that the artistic faculty in man proceeded on the same path as the literary faculty. In Crete, for instance, that held true; there was a great deal of skill, grace, and beauty in the decorations before there was architecture in the grand style. The architecture of a country was the best evidence of its state of society—whether it was rich or poor, or peaceful or troubled; if troubled, its buildings would be chiefly of defence. The diffusion of different types and styles over different local areas was an exceedingly interesting branch of the subject, because it was the branch in which history was best illustrated in architecture. The map of modern Europe was different from the map of mediæval Europe, but the political divisions of four to ten centuries ago are written unmistakably in the buildings of the different local areas over Western Europe, and those buildings also show what was the influence that one nation exercised on another during the mediæval period.

Mr. Bryce proceeded to give one or two illustrations, and in speaking of Indian architecture he said that anyone who went to India and saw the extraordinary diversity of styles in that country would be unable to explain that, unless he had the lamp of history to light his path, and it was a melancholy reflection that Englishmen were not leaving India much architecture of permanent value. If by some catastrophe we were to quit India and leave her to her own devices for 500 years, what traces would remain of English occupation? He thought the embankments, the railway cuttings, and the tunnels would be the chief remains. In speaking of mediæval Europe, he said there was great similarity in the different types of building of the same age, but all with distinctive features, and that was exactly what history told us; there was one religious head or faith, one great ecclesiastical power, but there were different influences coexisting and enabling the nations to acquire different characteristics. There was a diversity in unity and a unity in diversity; there were political divisions, which we do not notice now, which were written in the buildings of Europe. In France, for instance, there were four or five different types of architecture with great similarity, but all with distinctive features, and the same remark applied to Italy. In England there was not so marked a difference between the styles in different parts of the country as was to be seen in France, and the broad, salient feature about England was how largely she was influenced by France in her architecture.

As to the way buildings illustrated the needs of any age, the great fact in the Middle Ages in Europe was the ecclesiastical power, which dominated everything else, and religion occupied a larger part in men's thought than it does to-day. Therefore the great buildings which had come down to us from the Middle Ages were mostly ecclesiastical buildings, and we saw recorded in them—in their size, splendour, and beauty—the immense passion which the people threw into their religion and the money they spent to produce noble structures. A curious little instance belonged to our own time. The XIXth century had been the great age since the end of the XVth century of church building and restoration. That was due to two concurrent influences; one was the extraordinary development of wealth and population, which made more churches necessary, and the other was the influence of the romantic movement—the same influence that we saw in Ruskin and Walter Scott—which took people back to the Middle Ages and gave them an interest in architecture and art, and made them willing to spend money on building churches and in making them sumptuous and beautiful. When the New Zealander came ten centuries hence to reconstruct the history of England from its ruins, he would be struck by the number of churches belonging to the XIXth century, and if all other records were gone, he would find the evidence of buildings valuable for the purpose. Besides churches, there were many places in which we found fine town halls, and such great municipal buildings were a witness of the truth of the force and volume of the municipal life of the time.

Architectural history embodied, as hardly anything else did, the life of the people. It gave a new interest to travel, and made it far more profitable and suggestive. Nothing set one thinking more than to study the architecture of a city and what the life of it must have been as revealed by the buildings that remained. It set one thinking, and there was a reason for everything in the world if one could but find it, and the essence of all profitable travel was to make one ask the reason for what one saw, and nothing did that more than the study of

architectural history. Architecture was one of those branches of art which suggested to us the immense influence and power of emotion, as well as intellect in the development of mankind. It was emotion which was the motive power of man; it was religious emotion which had produced most of the great art of the world, and it was religious emotion that drove man on in the path of artistic creation.

A vote of thanks to the lecturer and the Chairman brought the proceedings to a close.

THE LONDON COUNTY COUNCIL.

THE ordinary weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir E. Cornwall, M.P., Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Battersea Borough Council 9,098*l.* for various purposes; Camberwell Borough Council 1,163*l.* and 2,500*l.* for housing purposes; Hammersmith Guardians 12,400*l.* for poor law purposes; and Lewisham Borough Council 4,737*l.* for street works, etc.

Improvement, King's-road, Chelsea.—The estimate of expenditure on capital account of 4,814*l.*, submitted by the Finance Committee, in respect of the King's-road, Chelsea, near Church-street, improvement was approved.

Streatham High-road.—It was agreed that the amount of the Council's contribution towards the cost of widening Streatham High-road, between Mount Ephraim-road and the Tate Library, executed by the Wandsworth Metropolitan Borough Council, be 4,070*l.* 15s. 1d.

Northern Low-level Sewer—Diversion at East London Railway.—It was agreed—(*a*) That the estimate of expenditure on capital account of 10,390*l.* submitted by the Finance Committee in respect of the reconstruction of the northern low-level sewer where it crosses the East London Railway at Shadwell be approved. (*b*) That the estimate of expenditure on maintenance account of 2,000*l.*, submitted by the Finance Committee, in respect of the diversion of the northern low-level sewer at the East London Railway, Shadwell, be approved. . . . (*d*) That the offer, amounting to 11,235*l.* 15s., of W. Kennedy, Ltd., be accepted for the reconstruction of that portion of the northern low-level sewer where it crosses the East London Railway at Shadwell.

Indication of Houses of Historical Interest.—The Local Government, Records, and Museums Committee reported as follows:—

"On October 25, 1904, we informed the Council that, acting upon our suggestion, the Duke of Bedford had affixed memorial tablets at his own expense to certain houses on his estate. We have since been informed that His Grace has affixed tablets to the undermentioned additional houses:—Nos. 100-102, Great Russell-street (Topham Beauclerk and Lady Diana Beauclerk); No. 54, Gower-street (Sir Samuel Romilly); No. 31, Bloomsbury-square (Sir Anthony Panizzi); and No. 67, Russell-square (Lord Loughborough). The tablet in memory of Sir Anthony Panizzi was affixed as a result of a suggestion made by Mr. J. T. Taylor, a member of the Council. We propose that a list of the tablets affixed by the Duke of Bedford shall be included in the volume, "Indication of Houses of Historical Interest." We have made inquiries with a view to the commemoration of the residence in London of Sir Edwin Landseer, but we regret that we are unable to recommend the Council to take any action in the matter, as it appears that the only two houses in London in which Landseer resided have been demolished."

Main Drainage Extension—Appointment of Arbitrator.—The following recommendation of the Main Drainage Committee was agreed to:—

"That the seal of the Council be affixed to the appointment (in duplicate) of Mr. Edward Augustus Grüning as sole arbitrator in the matter of the claim of Mr. W. J. Lough in respect of alleged damage to Nos. 167 to 173 (odd numbers), Eastfield-street, Bow, by reason of the construction of section No. 1 of the northern low-level sewer No. 2."

Tooting Common—Formation of a Bathing Lake.—Permission was given to Wandsworth Metropolitan Borough Council to form at its own expense a bathing lake with an area of not less than 30,000 sq. ft. on a site on Tooting Common immediately adjoining the western side of the London, Brighton, and South Coast Railway between Tooting Bec-road and Bedford Hill-road, subject to all work being executed to the satisfaction of the Council.

Displacement of Population, 1906.—The Parliamentary Committee reported that they had before them a return, prepared by the statistical officer, showing the probable displacement of population in London to the extent of 6,809 persons through the proposed acquisition of 1,727 houses in connexion with the various Bills deposited in the present session of Parliament. The Housing of the Working Classes Act, 1903, requires rehousing accommodation to be provided where as many as thirty persons of the labouring class are displaced under any Bill in the Administrative County of London. Prior to that Act the limit below which rehousing was not required was twenty houses in any metropolitan borough.

The Council adjourned soon after seven o'clock.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Clapham.—Buildings between Nos. 65 and 69, South-side, Clapham Common, Clapham (Messrs. Homer & Lucas).—Consent.

Hackney, Central.—Projecting pilasters to Nos. 231, 233, 235, and 237, Mare-street, Hackney (Mr. C. G. Smith for Mr. W. Frith).—Consent.

Hammersmith.—Buildings on the northern side of Uxbridge-road, westward of Providence-place (Mr. J. H. Richardson for the Home Counties Land Company, Limited).—Consent.

Lewisham.—The retention of a one-story shop in front of No. 5, Brownhill-road, Catford (Messrs. Norfolk & Prior for Mr. J. Allder).—Consent.

Lewisham.—That the application of Messrs. W. D. Church & Son for an extention of the period within which the erection of a porch in front of a proposed church on the south-eastern side of Torridon-road, Lewisham, was required to be completed, be granted.—Consent.

Marylebone, West.—Bath-room additions and a covered way on the south-west side of Grove-road, St. Marylebone, eastward of the Regent's Canal (Mr. J. P. Waddington for the St. Marylebone Metropolitan Borough Council).—Consent.

Newington, West.—Houses on the north-western side of De Laune-street, Kennington (Messrs. Briant & Son).—Consent.

Paddington, South.—A projecting sign in front of No. 1, Burwood-mews, Burwood-place, Edgware-road, Paddington (Messrs. Allen & Mannooch, Limited, for the London and Parisian Motor Company, Limited).—Consent.

St. George, Hanover-square.—Bringing forward of the frontages of No. 1, Hamilton-place, abutting upon Piccadilly (Messrs. W. H. Romaine-Walker & Besant).—Consent.

Strand.—A deviation from the plans approved for the erection of two iron-and-glass shelters to the Royal Institute of Painters in Water Colours and Princes Restaurant on the south side of Piccadilly, so far as relates to the affixing of the name of the premises to both sides of the shelter in front of Princes Restaurant (Mr. W. Emden).—Consent.

Wandsworth.—Five blocks of cottages and shops (section "B"), Franciscan-road, Totterdown (Mr. R. Robertson for the Housing of the Working Classes Committee of the Council).—Consent.

Wandsworth.—The rentention of a porch in front of Spencer House, No. 27, Wimbledon Park-road, Wandsworth (Messrs. Boyton, Sons, & Trevor).—Consent.

Wandsworth.—A building on the western side of Beaumont-road, Wandsworth (Mr. A. J. Hardwick).—Consent.

Hampstead.—A building at the rear of No. 9, Fawley-road, Hampstead, to abut upon Honeybourne-road (Mr. C. G. Durrand for Dr. G. Elam).—Refused.

Marylebone, West.†—Raising projecting one-story shops in front of Nos. 168 and 170, Edgware-road, St. Marylebone (Mr. J. W. Stevens for Mr. E. S. Burns).—Refused.

Width of Way.

Islington, South.†—Retention of a building at the rear of No. 35, Thornhill-road, Islington, with a forecourt boundary at less than the prescribed distance from the centre of the roadway of the southern arm of Barnsbury-square (Messrs. F. J. Eedle & Meyers for Mr. T. Heath).—Consent.

Width of Way and Lines of Frontage.

Kensington, South.—Retention of an iron-and-glass covered way at the entrance to No. 3, Douro-place, Victoria-road, Kensington (Miss F. A. Lee).—Consent.

Strand.—A projecting chimney-stack at No. 13, Golden-square, to abut upon Lower James-street (Mr. W. Woodward for Messrs. Rye & Eyre).—Consent.

Hammersmith.—A building at the rear of Nos. 243, Uxbridge-road, Hammersmith, at less than the prescribed distance from the centre of the roadway of a mews leading out of the east side of Askew-crescent (Messrs. Prickett & Ellis for Miss S. Axton).—Consent.

Woolwich.†—Buildings abutting upon the western side of Godfrey-street, the southern side of Godfrey-hill, and the eastern side of Lower Wood-street, Woolwich (Messrs. G. A. Wilkinson & Son).—Consent.

Strand.—A wood-and-glass showcase at No. 224, Regent-street, to abut upon Argyle-place. (Messrs. F. Sage & Co. (1905), Limited, for Messrs. T. & J. Perry).—Refused.

Paddington, South.—A one-story addition in front of No. 4, Hyde Park Gardens-mews, Paddington (Messrs. G. Trollope & Sons and Colls & Sons, Limited, for Mr. J. G. Griffiths).—Refused.

Formation of Streets.

Lewisham.—That an order be issued to Messrs. Norfolk & Prior, sanctioning the formation or laying out of a new street for carriage traffic out of the east side of Ravensbourne-park, Catford (for Mr. A. E. Rudd).—Consent.

Norwood.—That the Council do not accede to the request of Messrs. R. Ellis & Son, on behalf of Mr. R. A. Sanders, for permission to build over the land marked "reserved" on plan approved for the formation or laying out of five new streets for carriage traffic on the Sanders estate, on the south-east side of Coldharbour-lane, Brixton).—Refused.

Space at Rear.

Peckham.—A modification of the provisions of section 41 with regard to open spaces about buildings, so far as relates to a building erected on the north-east side of Hall-road, Peckham, abutting upon Hichisson-road (Mr. C. Farley).—Consent.

Space at Rear and Alteration of Buildings.

Bow and Bromley.—A two-story factory building over a part of the space at the rear of Nos. 47 and 49, Norman-road, Bow (Mr. A. P. Stokes for Messrs. C. J. Russell).—Consent.

Southwark, West.—Buildings on a part of the space at the rear of No. 6, Nelson-square, Blackfriars-road, Southwark (Mr. R. C. Murray for Messrs. Sidney Straker & Squire).—Consent.

Height of Buildings.

Limehouse.—A building on the site of Nos. 13, 15, and 17, Dod-street, Limehouse (Messrs. H. Herman, Limited).—Consent.

The recommendations marked † are contrary to the views of the local authorities.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE ninth meeting of the session was held at No. 18, Tufton-street, S.W., on Wednesday, February 28th, Mr. E. W. M. Wonnacott being in the chair, when Mr. E. C. M. Willmott read a paper on "The Architecture of Shop-fronts."

In the course of his paper, Mr. Willmott said: "A shop-front as we see it in the streets to-day makes no pretence at art or the expression of art. It has been accepted by even the best among us as a purely utilitarian necessity engendered of a present-day commercialism—a commercialism which I hope to show presently is only binding itself to its own advancement.

Of course, we are always ready to depreciate the fact that it is unseemly and unarchitectural for a stone building of massive proportions apparently to be supported upon a brass and mahogany slip of an inch or two diameter, but what are we to do? We lament the state of affairs, and promptly blame the clients who will insist upon large expanses of glass as a commercial necessity.

Surely our art has become stagnant and purposeless when we find it not equal to the task of adapting itself to modern conditions and requirements. The difficulties are, no doubt, very great, but they are not insurmountable, and I rejoice to find that a small move is now being made in the right direction. I will endeavour to prove that there are great possibilities of artistic treatment even in a shop-front. Conditions of life and commerce have so changed as to render useless and ineffective such charming old Georgian or Early Victorian fronts as we sometimes see in Soho and other quarters of London.

The shopkeeper, in those times, was limited both in his ideas and ambitions, so making it possible for the designer to do full and complete justice to those proportions which are so essential between the shop-front itself and the building overhead. Gradually the shopkeeper found it necessary to make his shop-front the medium whereby he could advertise and display the special goods which

be sold and attract the public. And this power to attract is the keynote which the designer must study to satisfy his clients' commercial instincts.

I propose to deal, firstly, with the single shop-front as being the most common problem. There should be perfect harmony between the shell and its contents, and a front that would be suitable for a jeweller is flagrantly out of place when setting forth the charms of a new costume. With the art of window-dressing improved and improving, we architects must fall into line and provide a shop-front which shall be not only artistic and suitable, but educationally instructive to the window-dresser.

A notable and praiseworthy tendency in many of our later fronts is to set back the actual line of the framework 2, 3, 4, or even 5 ft. from the frontage line. This has many advantages. It creates a standing-place where an intending customer can admire the goods without being jostled by passers-by. Again, if set back deeply enough it does away with any need for sun-blinds. The idea has many possibilities; the sides of the lobby, or loggia, can be occupied by show-cases, and in one or two examples I have seen an additional showcase in the centre.

Considering this setting back in relation to the building above, we now get a building over a void, and not, as it seemed before, on a framework of wood and glass. I should deprecate the use of the sham arch, and think that the only natural treatment for a shop-front opening is a square treatment of beam and posts, even showing the girder supporting the wall over boldly and frankly. Galvanise or otherwise protect it, and then do as one ingenious architect did, use it instead of the sham fascia, and let the name of the shopowner be bolted on in metal letters.

Now treat the stanchions in the same way, dress the bareness of girder and stanchions with a little decorative metal work, and I think the effect will not lack artistic qualities.

In contradistinction to the ideas I have just outlined we will imagine the most difficult case—a draper's shop where the glass is required to be taken down close to the floor, and the frontage is of considerable width. Let the line of building frontage be set back a few feet, and, instead of using the usual girders and columns for the superstructure, let it be carried upon a series of arches of such sizes and proportions as are suitable architecturally and structurally. Now, let your shell be practically a showcase hung up as a light accessory and projecting from the building face such number of feet as that may have been set back.

The frame itself could be of metal, giving a clear, unobstructed view, and made as much like a large hanging showcase as possible in order to do away with any impression that the building is supported upon glass or wood.

There is an increasingly popular tendency, especially in furniture shops, to take the front up two stories. This is certainly a gain to shopkeepers, as people are attracted from the tops of passing omnibuses.

Architecturally, I consider it also a gain if suitably treated, making the task of proportional reconciliation between the two portions of the building much easier to deal with. As the height to which the observer can see in comfort is never more than 8 ft. or 9 ft., all space above this is really useless unless for effective display, and, with the average ground floor anything from 15 ft. to 20 ft. high, the scope of the designer is enlarged and his difficulty lessened.

I would also plead that more attention be paid to the window back and general fitments.

With regard to a series of shop-fronts, we can do as in the Rue de Rivoli—that is, bring our buildings out over the pavement, making a series of arches upon which the superstructure is carried. The shop-front is set well back, and forms no part of the façade as seen from the street. Or we might have a small tower pier at each end of the front, and a large entrance block in the centre: on either side between the entrance block and side piers, both of which would project 5 ft. or 6 ft., come the shop-fronts proper. These could be appended to the building in the same way as we would attach a conservatory to a dwelling-house, and with, I think, the same architectural effect."

The lecturer concluded by drawing attention to the possibility of using the idea of the old Rows at Chester, where a continuity of thoroughfare was possible.

Mr. F. Lishman, in opening the discussion, considered the use of stall-board lights preferable to pavement lights. He suggested that sun-blinds might be made to run out horizontally, and so avoid the unsightly and awkward irons at sides. Arcades, he considered, were usually unprofitable undertakings. The double-story front, now somewhat frequently used in modern work, he also disliked, and advised a competition in reticence instead of showiness.

Mr. Pearson referred to the way certain well-known firms, such as Slater's and Kodak Co., had become associated in people's minds with certain and definite styles of fronts, so gaining cleverly an advertisement.

One or two speakers referred to the draper's requirements being the most difficult to deal with, the saying that the "eternal feminine is the root of all evil" evidently applying specially to shop-front architecture.

Mr. Max Clarke singled out certain excellent modern fronts, an early work in Oxford-street by Mr. Shaw being one specially noticed. He also, from recent experience, commended the recessed shop-front, it being almost a necessity for grocers' purposes.

Mr. C. R. Ashbee, who acted as Special Visitor, made a special point of reliance on colour and the use of bright metal. An early example, of the XVth century, was to be found at Beauvais, where tiles, in a wood setting, made a fine front. After referring to the use of curved glass at Slater's shops as a plucky attempt on legitimate lines, he turned to good lettering, on some of the old traditional models, as being a thoroughly good decoration. In fact, he advocated generally the preference for traditional forms over those of the "New Art."

Mr. Willmott, in replying, again emphasised the importance of avoiding any feeling that the shop-front was responsible for the support of the building above.

Fifty Years Ago.

FROM THE *Builder* OF MARCH 8, 1856.

NEWGATE JAIL.

AT a meeting of the Court of Aldermen of the City of London last week, Alderman Cubitt brought up the report of the committee on the state of Newgate Jail, and its improvement or removal. The report, after some preliminary remarks, in which it was stated that, till some important alteration was made in the physical structure of the interior of the building, Newgate must continue to be a standing reproach to the City of London, proceeded to intimate that a plan was under consideration which would give 120 separate cells at a cost estimated by the City architect at 10,000*l.*; that they had in view another plan of a comprehensive nature for the entire demolition of the courts and of the jail, and the reconstruction of the courts and such a portion of the jail as might suffice for the custody of prisoners while trials were going on, the objects of this plan being to dispense with Newgate as a prison, except only as above stated. A plan had also been submitted to the committee for such additions to the prison at Holloway as would enable it to receive the prisoners now kept at Newgate. The cost of the combined operations—that is, the reconstruction of the Criminal Courts and a portion of Newgate—was estimated by the City architect at 87,000*l.*, less the value of a piece of land at the Old Bailey set free, and estimated at 9,000*l.* In working out these plans, the City architect had so arranged as to permit the smaller one to form an integral part of the larger. The report, after some discussion, was received, and referred back to the committee to act therein as they should think fit.

SECONDARY SCHOOL, BLACKPOOL.—The new secondary school, in Raikes-parade, Blackpool, was opened recently. The scheme of the building is one of three floors—the rooms for trades instruction in the basement, those for ordinary class work on the ground floor, and those for art and science teaching on the first floor. The building contract has been carried out by Messrs. Parkinson & Sons, of Blackpool; and the architects are Messrs. Potts, Son, & Hennings, of Blackpool, Manchester, and Bolton.

Illustrations.

PART OF ELEVATION, HAMPTON COURT.

THIS is one of the drawings which gained for its author, Mr. John H. Markham, the Ashpitel Prize at the Institute of Architects this year. It appeared to us to be the best of the set; and, though Hampton Court is so familiar, so good a detail drawing as this is worth having, and will probably interest our readers.

The Ashpitel Prize was founded in 1872 as a memorial to the late Mr. Arthur Ashpitel, and is awarded annually to the student who distinguishes himself most highly in any one of the final examinations held during the year, and whom the Board of Examiners recommend as deserving of such honour.

In regard to the present drawing, Mr. Markham writes:—

"This building is probably too well known to need much description. The part illustrated is from the east, or garden, front of the State apartment erected by Sir C. Wren for William III. and Mary on the site of Henry VIII.'s old Cloister Green Court, which was pulled down to make way for it.

The materials employed in this front are Portland stone and brick, the brickwork to the ground floor being of a dark colour, and above that rubbed red bricks five courses to the foot.

The carved frieze between the Corinthian caps is probably by Grinling Gibbons, and the tympanum sculpture by Gabriel Cibbes represents Hercules triumphing over Envy, and is supposed to contain some complimentary allusion to His Majesty. The wrought-iron gates, probably by Fijou, are very fine.

To the south, or river, front the materials are similar, but a good deal of an Oxfordshire oolite has been used owing to the difficulty in conveying Portland stone up the Channel during the troubles with France. This stone has weathered to a warmer hue than the Portland, and can be distinguished from it. The date of the work is about 1690-1700

The drawing was made from measurements taken in July, 1904, and was used as a testimony of study for the final examination R.I.B.A."

ILLUSTRATIONS OF SOUTHWOLD CHURCH.

THESE illustrations, from photographs by Mr. F. Jenkins, of Southwold, are given in connexion with the leading article in the present issue, to which the reader is referred.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the managers of the Metropolitan Asylums District was held on Saturday last week, at the offices, Victoria-embankment, E.C.

New Central Stores.—Revised plans of the new central stores, submitted by the Contract Committee after conferring with the Works Committee, were approved and ordered to be forwarded to the Local Government Board. Messrs. Northcroft, Neighbour, & Nicholson were appointed to take out the quantities in connexion with this work.

Belmont Asylum.—On the recommendation of the Works Committee Messrs. Jowler & Hugman were appointed to take out the quantities of the proposed stables and other buildings at this asylum.

High Wood School and Leavesden Asylum.—The same Committee reported that the cost on completion of this school and the female attendants' home at the asylum had been respectively 105,507*l.* and 6,206*l.* Reports dealing with both institutions were ordered to be sent to the Local Government Board.

South Western Hospital, Isolation Accommodation.—Messrs. T. W. Aldwinckle & Son were appointed architects in connexion with the provision of additional isolation accommodation at the South Western Hospital.

Joyce-green Hospital.—Messrs. Treadwell & Martin were appointed architects for the new staff cottages and other buildings at this institution.

SCHOOLS, DROYLSDEN.—There were twenty-three tenders for these schools. The District Committee have recommended the acceptance of the tender of Mr. John Tinline, Parker-street Saw Mills, Bury, and, subject to the approval of the County Authority, the contract will be let to him.

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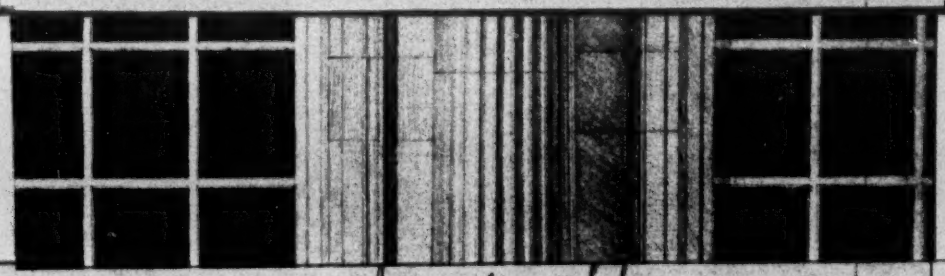

John A. Markham.
Mem. Lace Society July 1907.
Clerk Worsh. 1905.

R.I.B.A
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SCALE 1 INCH

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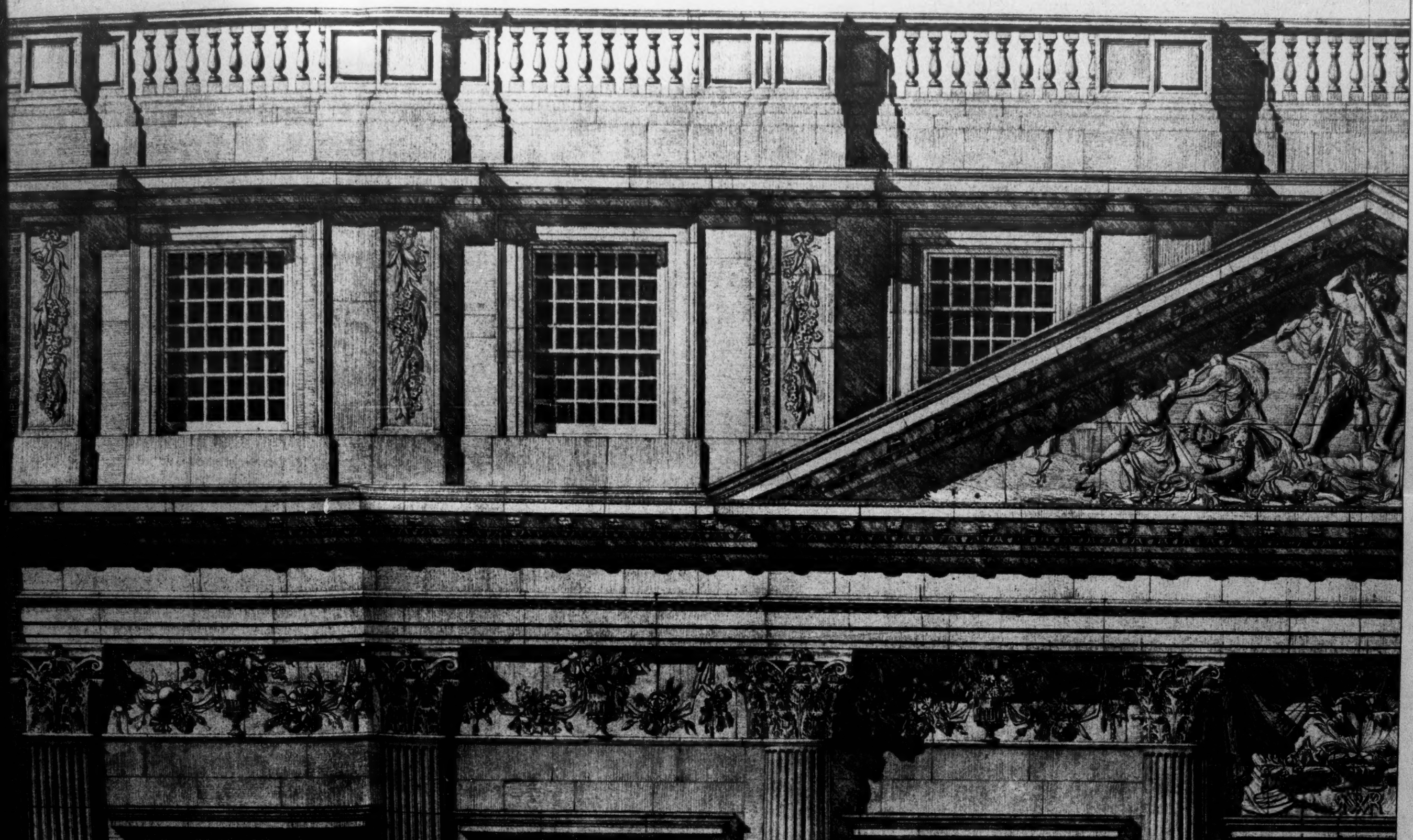
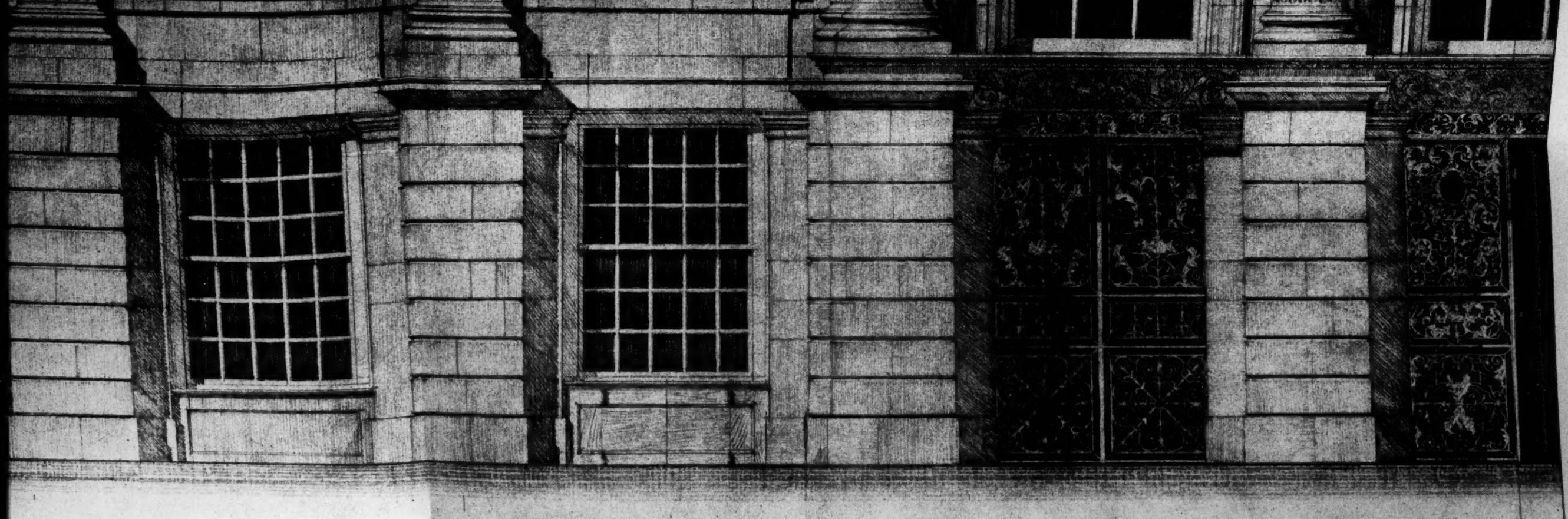
1689 & 1700.

HAMPTON COVRT PALACE

SIR C. WREN ARCHT.





EAST FRONT

SCALE 3/32

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John A. Markham.
Mem. Trans. July 1907.
Ass. March. 1905.

R.I.B.A.
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R.I.B.A., 1906.

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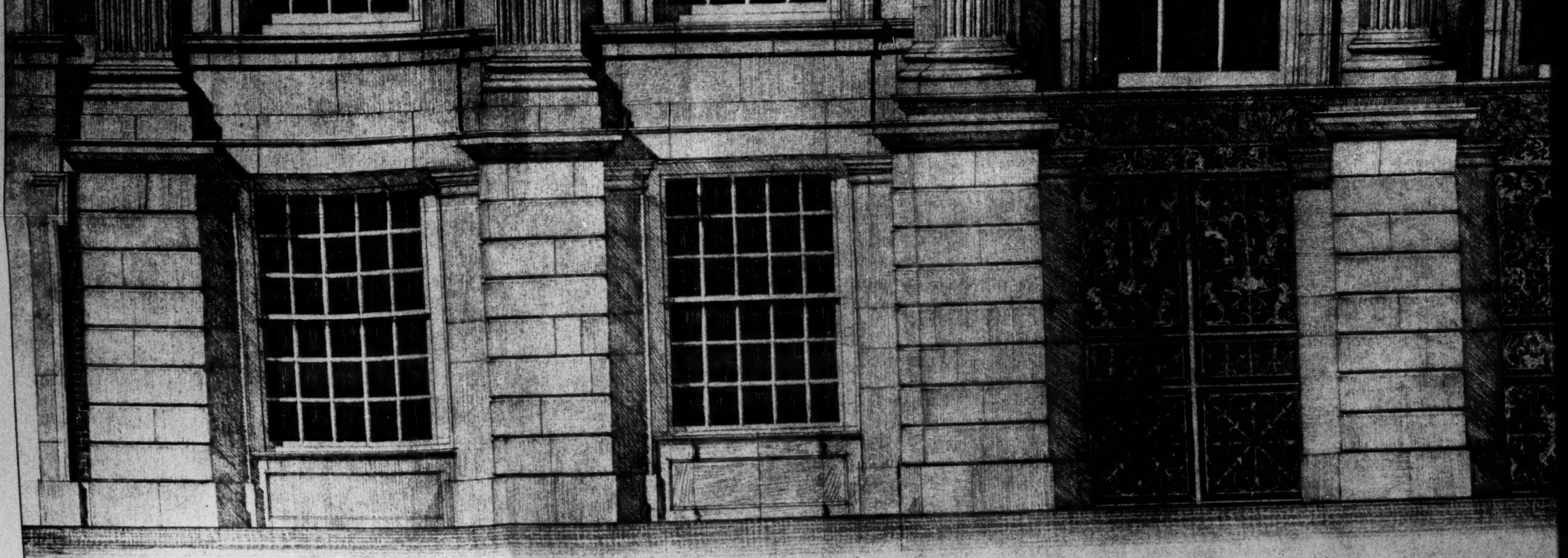
HAMPTON COVRT PALACE

SIR C. WREN ARCHT.



EAST FRONT

SCALE 1/32

John Markham.
del. June-July 1904.
del. March. 1905.

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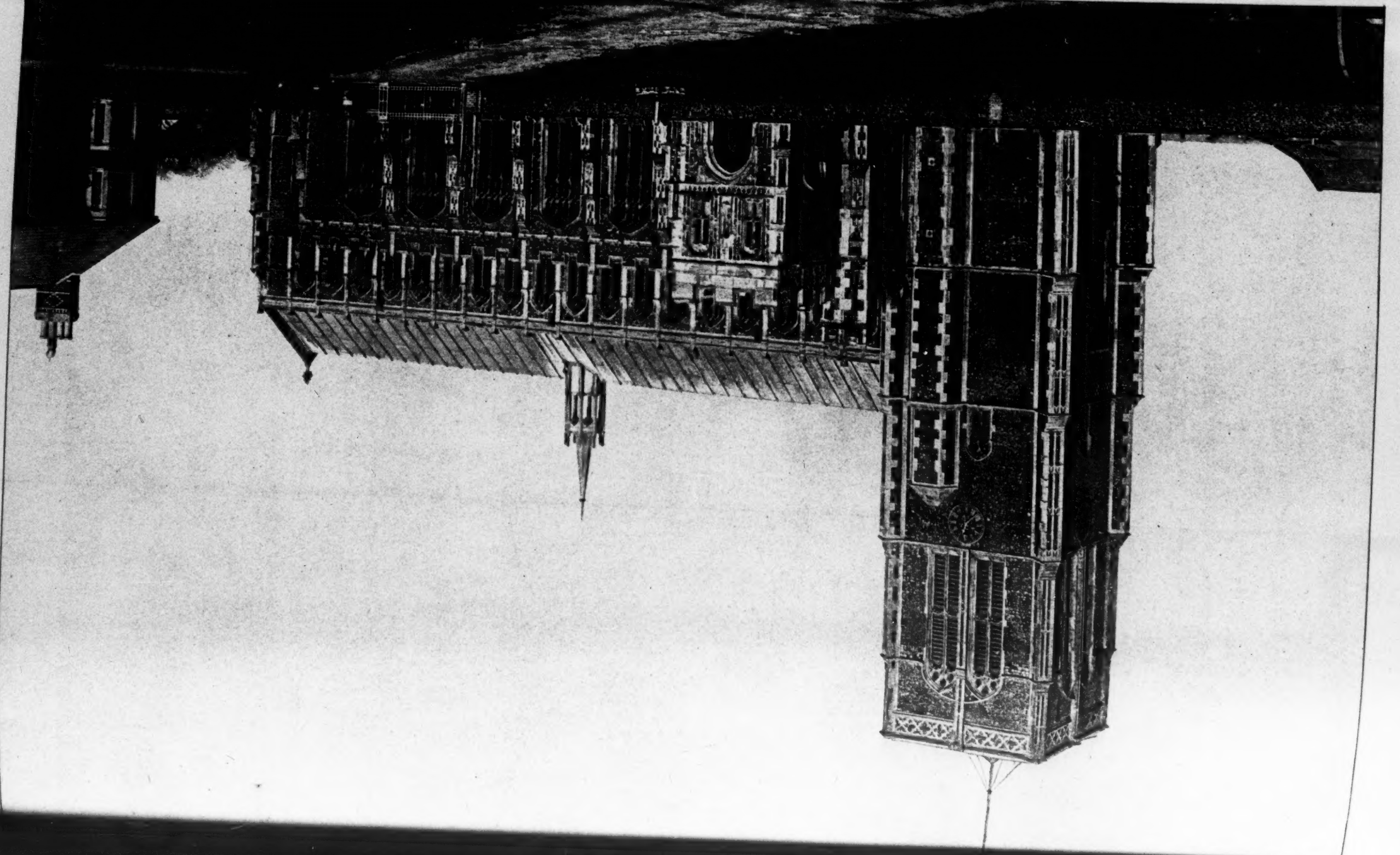
Ashpitel Prize, R.I.B.A., 1906.



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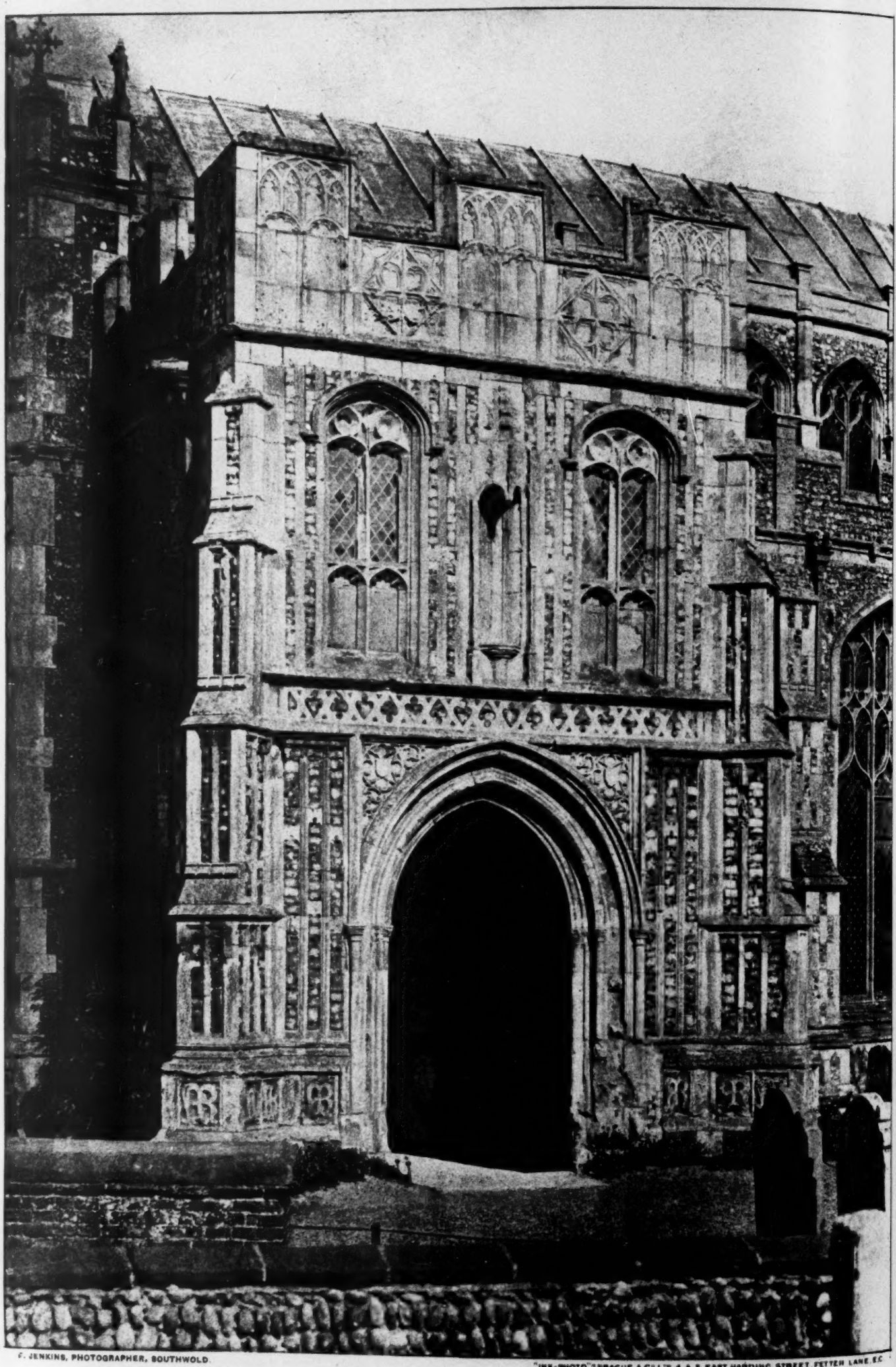
VIEW FROM SOUTH-WEST.

F. JENKINS, PHOTOGRAPHER, SOUTHWOLD

VIEW FROM SOUTH-EAST.

INK-PHOTO. SPRAGUE & Co. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

ST. EDMUND'S, SOUTHWOLD.



F. JENKINS, PHOTOGRAPHER, SOUTHWOLD.

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PORCH, SOUTHWOLD.

F. JENKINS, PHOTOGRAPHER, SOUTHWOLD.

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CHANCEL SCREEN, SOUTHWOLD.

ARCHITECTURAL SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—Before the members of the Birmingham Architectural Association Professor Beresford Pite lectured on the 2nd inst., on "Architectural Effects in Cities." Architecture, he pointed out, was the expression of noble thought. It united the practical elements of life with the experience of, and reverence for, past art. So far as Great Britain was concerned, Edinburgh, he said, took the palm for beauty in architectural effect. They did not grudge it its civic glory There was similarity in architectural effect in Birmingham, Manchester, and Leeds. Each had fine buildings, but the grouping was not really effective. As a matter of effect the civic monuments in architecture in this country were too often lost; they were being lost in the crowd. They were disconnected and scattered, because they were dealt with from time to time, separated by long intervals. Cardiff, however, was a more hopeful illustration of what intelligent foresight could achieve. The acquisition of Bute Park had enabled a site to be laid out for town hall, law courts, museum, and university all adjoining the picturesque castle. As far as practicable there should be characterisation of different districts. There was grandeur in the Thames Embankment, and in this connexion he insisted that public buildings and national monuments could be placed with better effect on the banks of a broad river than on any other class of site. Pictorial illustrations were given of English and foreign architecture in order that the many students present might note the contrasts in style and expression.

NORTHERN ARCHITECTURAL SOCIETY.—At the meeting of the Northern Architectural Society in Newcastle, on the 28th ult., the award of the assessor in connexion with the R.I.B.A. Intermediate examination testimonies of study was read. The first prize was awarded to Mr. Wilfrid Turpin Sunderland, and the second to Mr. J. H. English, of Corbridge. During the evening the Glover Bronze Medal was presented to Mr. Bryan Watson. A paper was read by Mr. J. B. Mitchell-Withers, of Sheffield, on "Early XVIIIth Century Architecture," in which he referred to Greenwich Hospital as the building where the work of Inigo Jones and Sir Christopher Wren could be seen to advantage, but of which portions were built by various architects in the XVIIIth century, of whom Sir John Vanbrugh and Hawkemoor were the most celebrated. He showed lantern slides of portions of this work, and of some of the buildings erected in London during the XVIIIth century. The architects of the period did not continue the tradition of Sir Christopher Wren, but adopted a heavier style, making the details of their buildings much more massive. In the smaller buildings the same feeling was introduced, and the interiors were carefully thought out even in smaller houses, there being evidence of great skill and refinement throughout. Mr. Mitchell-Withers afterwards referred to the buildings erected at Oxford and Cambridge, such as the Fellows' Buildings and the Senate House at Cambridge, and the Radcliff library and buildings to the High-street at Queen's, in Oxford. Domestic and street architecture of the period were illustrated by a number of views of buildings at Bath and Stamford, concluding with views of Blenheim Palace and Castle Howard, both of which were built by Sir John Vanbrugh.

CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY.—A meeting of the Cardiff, South Wales, and Monmouthshire Architects' Society was held in Cardiff on the 22nd ult., the chair being taken by the President, Mr. J. H. Phillips. A paper was read by Mr. J. Ward, the Director of the Welsh Museum, Cardiff, entitled "Some Observations on the Planning of Romano-British Houses." The lecturer first described the typical Pompeian house, and then proceeded to give the salient features of the Romano-British house. By means of a series of block plans he indicated the development of a typical house of the latter kind from the simplest form to one of considerable complexity surrounding a courtyard, and showed that the planning of the Romano-British was fundamentally different from that of the Pompeian. He then illustrated this point by a series of plans of actual houses, beginning with several Silchester examples. *En passant*, he paid a high tribute to the explorers of Silchester and Caerwent, remarking that they digged for "plans," not for "plums." Silchester, he said, had revolutionised our views of the Romano-British houses, and he referred with high praise to the illuminating remarks upon their character by Mr. George E. Fox (one of the directors of the former exploration). Mr. Ward pointed out that in its simplest form the Romano-British house consisted of a row of rooms bordered on one side with a corridor, which provided a means of access to these rooms. He considered that the corridor was an external adjunct, carried as high or but little higher than the first floor of the main block. This block, he showed, constituted the nucleus in the more complex houses. While he regarded the nucleus as of two stories, he was inclined to think that the various outshoots were of a single story on the whole. He strongly advocated the use of models of the remains of Roman buildings in museums, and pointed out the excellent work in that direction in the Reading Museum. More could be learned from the model of a house than from an assemblage of broken pottery and fragments of metal found on its site. What, he asked, would anyone learn of a Tudor house from a Tudor candlestick taken from it?

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on Monday, the 5th inst., Mr. Maurice Wilson, President, in the chair, a paper was read on "Submerged Chain Cable Groynes," by Mr. R. G. Allanson-Winn, of which the following is an abstract:—In his opening remarks the author stated that this paper had been prepared with the view of describing the chain cable groyne and its uses, and he dealt with the difficulties often experienced in securing examples to put sufficient life and force into a theory to secure its comprehension and acceptance. The author then urged on all young members of the profession the importance of not only learning all they can from books recording the experiences of others, but of using their best endeavours to make their knowledge their "very own," by efforts to gain what he termed unaided solutions to troublesome problems. By that means they might avoid the danger of sliding into ready-made grooves, and quenching their own originality. The following are the main features of the author's chain cable groyne:—To a heavy chain cable are attached bushes or other suitable obstructions, until the chain is converted into a veritable flexible hedge. When used on the visible shore the chain is strongly pinned down to the shore by iron bars or piles, and is laid in deeper water from low-water mark by paying out from barges or lighters. When the flexible hedge or groyne has been placed in position, seaweed and other travelling material collects in and around the hedge, and the obstruction begins to cause a slowing down of currents and to encourage the deposit of all kinds of detritus. Dealing with the practical question of the areas which may come under the influence of groynes, the author took for example an average shore, on which the horizontal distance between high and low water marks was 600 ft., and the distance from low-water mark to the five-fathom line was one mile. Here it was easy to realise what a large area of the invisible shore was being influenced by currents and waves, compared with the visible area exposed to the sea's action with every tide. Taking 100 ft. of frontage, he said, we saw 60,000 sq. ft. of exposed shore acted on by visible agencies, but when it came to the same width of the invisible sea bottom, constantly exposed to the unseen movements beneath the surface, we had an area of 528,000 sq. ft. over which we knew changes were taking place and material travelling possibly in vast quantities. Reference was here made to the condition of the Dunbar foreshore, and to the troublesome situation at Bray, a description of the groynes at the latter place being given. The reality of deep-sea erosion as the main factor to be reckoned with on the East Coast and elsewhere was enlarged upon by the author, who held that almost any form of low groyne securely held in position between, say, mean sea level and a point in the deeper water in the offing—to be decided upon by the particular circumstances of the case—would arrest and bring about the retention of large masses of travelling material and the covering up of exposed surfaces. Quotations were given from various recent articles and letters referring to the origin and utility of low groynes, and the conclusion of the paper was devoted to a description of various sections of the East Coast sea bed, taken over certain lines from charts dating back to 1824, and in one case even to 1806, the comparison of the older sections with those of the present day fully bearing out the author's contention as to the deep-sea erosion, and consequent advance of deep water landwards.

COMPETITION.

HACKNEY CENTRAL LIBRARY.—The awards of the assessor (Mr. J. W. Simpson, F.R.I.B.A.) in the Hackney Central Library competition was made known on Monday; 152 designs were submitted. First place was given to No. 26 "for its excellent and economical planning and generally satisfactory design." The assessor continued:—"I have checked the author's calculations of cost, and am of opinion that the design can be executed for the sum stipulated in the conditions. The second place I award to No. 23 for a very good plan and picturesque elevation. I place third No. 140, who submits a design which is in many ways admirable. The following designs may be mentioned as meritorious:—Nos. 6, 22, 32, 45, 49, 53, 55, 58, 67, 71, 86, 100, 128, 134." The Libraries Committee, in its report upon the competition, says:—"The assessor regards the competition on the whole as a successful one, many of the designs being of considerable excellence. Every drawing submitted was examined by the assessor personally, and every report read. Full consideration was given to all, however inadequately presented, and their merits carefully marked as far as possible. The designs are to be exhibited in the swimming baths for members of the Borough Council only this week. From the 12th to the 17th inst. they will be on view for competitors and the public generally. The sealed envelopes containing the names of the competitors are not to be opened until the Council has definitely decided the appointment.

Books.

Lockwood's Builders', Architects', Contractors', and Engineers' Price Book for 1906. Edited by FRANCIS T. W. MILLER. (London: Crosby Lockwood & Son. 1906.)
Laxton's Builders' Price Book for 1906. Originally compiled by WILLIAM LAXTON. Eighty-ninth Edition. (London: Kelly's Directories, Ltd. 1906.)

THESE two works, which can now be considered the standard books of reference on the subject of builders' prices, keep abreast of each other in completeness and the excellence of their contents, and form a good example of the beneficial effects of healthy competition. The position that both have taken in the building world for some years past is due largely to the greater attention to the rise and fall of the markets given in the later issues than was the case some years ago, when the editors of both seemed satisfied to republish the same prices and information (often misleading) year after year, until the suggestion of referring to a price book provoked a smile. Happily, these days have passed, and, so far as it is possible for any price book to be of value in practice, these works meet the demand.

The position of the building trade for the past twelve months has remained practically stationary, and, as everyone interested trusts, at its lowest point, consequently the work of revision has been light. Strangely, "Lockwood," which in the preface notes a slight upward tendency, apparently considers it so "slight" as not to warrant a rise in pricing, while "Laxton," which does not mention this "upward tendency," shows a slight increase—a very slight one—but sufficient to show that the editor has not been idle. While everyone wishing to build is anxious for low prices, the fact remains that the state of the building trade is a fair indication of the

prosperity or otherwise of the country; it is therefore to be hoped that before the next editions are published the editors will find plenty to do in a general revision.

Both works give a reprint of the London Building Act, reports of law cases, conditions of contract, and other miscellaneous information; while "Lockwood" is brought up to date with the Amendment Act of 1905.

Valuations and Compensations for the Use of Architects, Surveyors, etc. By Professor BANISTER FLETCHER, F.R.I.B.A., etc. Third Edition. Revised and Rewritten by BANISTER F. FLETCHER and H. PHILLIPS FLETCHER. (London: B. T. Batsford. 1905.)

THE revision and rewriting of this work is obvious to anyone who has studied the earlier editions, while the call for a third edition is a commentary upon the varied practice of an architect—or ought it more properly be that of a surveyor, the practice of architecture as an art being far removed from such prosaic subjects as valuations and compensations? In addition to two of the editors being F.S.I.'s (and one of them a barrister-at-law in addition), the preface refers to three more who have had a hand in the work, which for its size is one of the most complete reference books on these subjects.

The authors have strengthened their advice and information by giving references to former decisions in numerous cases. Especially useful is Chapter III., dealing generally with points to remember in making out a claim, as also is Chapter VII., on procedure—that bugbear to so many professional men, however well qualified they may be to deal with the question of valuing. This chapter deals with almost every prospective difficulty, and, moreover, treats of the question of "latent value" and that much-vexed question of "betterment." In the appendix are given many useful tables, and we have no hesitation in commending the work to anyone who may be called upon to formulate a claim for compensation, or who may have to value property for any other purpose.

The Cathedrals of England and Wales. Second Series. By T. FRANCIS BUMPUS. (London: T. Werner Laurie. 1906.)

THERE have been in recent years so many books and details published of our cathedrals that it may be questioned whether a further book on the subject was needed. The subject will, however, always be a fascinating one for both writer and reader, and the author has brought together from actual observation and former writers a number of facts and details relating to the cathedrals which are included in this, the second volume of the series. Eight cathedrals are described—Canterbury, York, St. Paul's, Winchester, Norwich, Peterborough, Exeter, and Wells. The illustrations are reproduced entirely from photographs, many of them excellent. A view of the interior of the choir of St. Paul's before the mosaics were inserted is interesting as a record, and there is a good view of the interior of the nave at Norwich. The distant view of Wells from the south-east is one of the most effective points from which this building can be seen, but within a volume of this size it is not possible to attempt anything like an adequate account or illustration of so large a subject. A considerable list of authorities quoted is given at the end of the book, which is capitally printed throughout, and will doubtless be a popular publication.

The Year's Art: 1906. Compiled by A. C. R. CARTER. (London: Hutchinson & Co. 1906.)

THIS useful publication fully keeps up its standard of information as to the artistic events of the past year, and is supplemented by a short critical article by the Editor which contains more of judicious criticism, especially in regard to the recent idolatry of Whistler and Manet, than we generally find in current writing about art. The illustrations to this year's issue consist of a good reproduction of the "Venus" of Velasquez; portraits of Mr. Thomas Brock, Sir Aston Webb, and the late Robert Brough; and a sketch of a little girl under the title "Tired," which was exhibited by the Royal Drawing Society last year, and was a drawing from life by Beatrice Hirschfield, a child of eight years old. As such it is most remarkable, and was well worth introducing, as an encouraging example of what can be done by young children drawing with the object before their eyes.

For those who do not know "The Year's Art" it may be mentioned that its permanent contents include lists of the chief pictures in our permanent art galleries; information as to art institutions in London; records of the main artistic events in Great Britain and the colonies; lists of the art sales of the year and the engravings published; a directory of artists and art workers; a list of private art schools; and other useful information and records.

The Champagne Standard. By Mrs. JOHN LANE. London: John Lane; 1906.

THE meaning of the title of Mrs. Lane's pleasant and attractive book is that it is a protest, in the first instance, against the evil of show and extravagance in daily life—keeping dinner-parties (and everything else) up to "the Champagne standard," whether one can reasonably afford it or not. This is the subject of the first chapter, and gives its title to the book, which in a general way would hardly come within our province; but Mrs. Lane, who we gather is an American by birth, has some trenchant and amusing criticisms to make on house architecture and arrangements in England, which she finds very inadequate and primitive in some points, compared with American houses. There is, in the average house, no dinner-lift; there are no speaking-tubes to save servants running up and down stairs; the plumbing is "clumsy and inadequate"—"in America it would be pretty and nickel-plated, resisting the action of the air, and easily kept clean." There is a want of contrivance of cupboards and other recesses, for which she blames the English architect, and suggests, in a chapter on "Women as Architects," that women would plan houses much more conveniently than men. There is some truth in all this, though we should be inclined to think that the author has been a little unfortunate in her architect; she might certainly have found some who would not have overlooked the things she mentions. In illustration of "the remarkable progress in America in all the applied and domestic arts within the last ten years," it is mentioned that when they desired to put away the funereal chimney pieces from a Victorian house, they could get no wooden mantel-pieces but what were expensive and clumsy, and had to go to New York to get those which were artistic and cheap. Of the average wooden chimney piece sold in England this would be true enough; but it is possible nevertheless to get the right thing in England, if you know where to go for it. However, Mrs. Lane's criticisms are both piquant and good-natured, and are worth attention.

BOOKS RECEIVED.

WHERE TO LIVE ROUND LONDON (Southern Side). Edited by Prescott Row. (The Homeland Association. 1s.)

MODERN MILLING MACHINES. By Joseph G. Horner, A.M.I.Mech.E. (Crosby Lockwood & Son.)

A MANUAL OF COSTUME AS ILLUSTRATED BY MONUMENTAL BRASSES. By Herbert Druitt. (The de la More Press. 10s. 6d.)

PAPERS OF THE BRITISH SCHOOL AT ROME. Vol. III. (Macmillan & Co. 30s.)

BUILDING CONSTRUCTION. By Professor Henry Adams, M.Inst.C.E. (Cassell & Co.)

TRADE CATALOGUES.

WE have received from the Leeds Fireclay Company a large and well-bound catalogue of nearly 600 pages, containing more than a thousand illustrations (chiefly half-tone) of the most important manufactures of the associated firms, together with prices and other particulars. The catalogue is divided into twelve separately-paged sections, namely—I., Glazed bricks, tiles, partitions, etc.; II., Burmantofts terra-cotta and faience, including illustrations of some important works carried out from the designs of well-known architects; III., "Imperial" porcelain baths with the necessary fittings; IV., Cliff's "Imperial" porcelain lavatory basins and Oates & Green's lavatory basins and drinking fountains; V., sinks for domestic use, slop-sinks, etc.; VI., wash-tubs; VII., urinals; VIII., water-closets, both single and multiple, wash down and siphonic; IX., Oates & Green's waste-water-closets; X., hospital and laboratory fittings, including surgeons' lavatories, bracket closets, slop-sinks, post-mortem tables, laboratory sinks, etc.; XI., stable and farm fittings with glazed-ware mangers, hay-racks, cattle troughs, etc.; and XII., drainage specialities, including pipes, traps, gullies, channels, inspection-eyes etc. The catalogue is a very comprehensive one, and in nearly all cases the sections on sanitary fittings are divided into two parts, one giving illustrations and prices of the unfitted goods and the other of the same goods fitted complete. Separate illustrations and prices are given of the various accessories. Architects and builders will certainly find the catalogue extremely useful.

Messrs. A. & P. Stevens send us their catalogue of electric, hydraulic, and other lifts in the form of a tastefully-produced quarto volume, consisting for the greater part of full-page illustrations and brief descriptive notes. As modern lifts have usually to be specially adapted to prevailing conditions, comparatively little value attaches to a price-list of such apparatus, and in the case of this firm the object of a catalogue is evidently to place before interested readers a general idea of the machinery and fittings supplied, with the view of eliciting correspondence leading up to the preparation of exact specifications and estimates suited to stated requirements. Four distinct types of electric lifts are illustrated, namely—Passenger-lifts of the under-driven drum type with car switch control, the overhead geared drum type with rope control, and push-button controlled lifts, and goods lifts with friction-drive and rope-control. Hydraulic lifts are still more fully illustrated, the examples selected covering practically every type of passenger and goods lift in ordinary use, while belt-driven and hand-power lifts are briefly described. The remaining pages of the book are devoted mainly to the illustration of steam and belt-driven pumps, hydraulic pumps, accumulators, intensifiers, control valves, wrought-iron lift cars and enclosures: and they also include a drawing of a useful hydraulic crane with hydraulic lifting and slewing gear.

Messrs Wilmer & Sons have sent us a copy of their general catalogue, containing illustrations and prices of fire-grates (including Bond's patent stove without front bars), kitcheners, mantles, baths, water-closets, lavatories, manhole covers, stable fittings, rain-water pipes, soil-pipes, builders' hardware, etc. It is somewhat surprising that a catalogue of eighty-eight pages, containing illustrations of such a varied assortment of goods, has been sent out without either index table of contents. From the same firm we have also received a priced catalogue of slate and marble slabs, slate cisterns, drain-pipes and channels, paving bricks, copings, roof and floor tiles, finials, etc. The table of contents is useful.

The Simplex Conduit Co. send us illustrations and description of their electric shade tilter, a contrivance for tilting the lamp and shade of a hanging electric light in the direction in which the light is specially required. The action, as far as we can judge from the drawings, is very simple and is contrived so that the shade will maintain its position at any angle at which it has been placed. A flexible wire with extra length for adjustment to different positions is required.

Correspondence.

THE SURVEYORS' INSTITUTION.

SIR,—I am much obliged to you for inserting my remarks on the discussion following my father's paper last week, but should like to point out that these do not represent my official reply, which will be printed later in the "Professional Notes" of the Institution. H. J. LEANING.

PORCHES AND APPROACHES.

SIR,—The illustration of the very interesting city gateway given on page 227 is wrongly described. It should be "the Amsterdam Gate,

Haarlem." I saw it last in 1884 and, if I remember right, it is the only one of the Haarlem gateways that has not been destroyed.

JOHN NEWNHAM, A.R.I.B.A.

*** We had an impression at the time that it did not look like anything at Amsterdam, but in our friend Mr. Baggallay's paper it was clearly stated "The Haarlem Gate at Amsterdam" (see page 228), and we therefore assumed that he was correct. It was evidently a slip of the pen.—ED.

The Student's Column.

SOME MATHEMATICAL METHODS AND USEFUL DATA FOR ARCHITECTS.—IX.

APPROXIMATIONS.

WHEN dealing with contracted methods of multiplication and division we called attention, on p. 147, to the relatively small value of the figures in the units, tens, and hundreds places in large numbers. Of course, in many cases the actual value of the right-hand figures of a number may be of much importance. This is more particularly so in commercial than in technical calculations of practical character, and the consideration to be paid to the figures representing units, tens, and hundreds must depend largely upon the magnitude and value of the units represented by any number in question. For example, it might not be wise to accept approximations if sovereigns or 5*l.* notes were treated as units, although approximate methods might be permissible in the case if the units were farthings or pence.

Nevertheless, for the purposes of an estimate for works to be executed involving hundreds or thousands of pounds, a few pounds are obviously of little importance, because so many unforeseen contingencies are always involved as to preclude any reliable prophecy as to the actual cost of the works.

An architect or an engineer who has to give his client an idea of the amount likely to be required for the execution of a given project never dreams of measuring the cost to a nicety.

Similarly, if contracting firms really calculate every item in minute detail, they usually add a purely empirical margin for contingencies. Tenders submitted are very often brought out to shillings and pence, not as the result of calculation, but for the purpose of effect. Sometimes a little is deducted from and sometimes a little is added to the calculated amount.

If the estimated total were 3,005*l.*, for example, the contractor would very probably make his tender, say, 2,989*l.* 15s. 6d., so as to bring the amount below 3,000*l.*, and in the hope of being a few pounds below other competitors. Or if the total came out at, say, 2,975*l.*, a few pounds might be added for luck and a few shillings and pence for decorative purposes, thus giving such a sum as, say, 2,985*l.* 16s. 9d.

The fact that harmless little devices of the kind exist is sufficient to show that approximations within judicious limits are quite suitable for contractors, as well as for architects, in some monetary calculations.

When we come to statistical computations, the value of approximate methods is even more evident.

For instance, in dealing with population and water supply it would be perfectly futile to take into account units, tens, or hundreds of persons in a large town, or thousands of persons in a large country, or to deal with tens or hundreds of gallons of water. The reason, of course, is that the available statistics of population are never correct except for the particular date on which they were compiled, and that the available supplies of water cannot be precisely guaranteed under all circumstances.

In practical work, measurements forming the bases of computations are rarely correct to more than three decimal places, and even when quantities have been measured with the greatest possible accuracy they are seldom correct to more than six decimal places. In other words this means that an ordinary measurement is sufficiently accurate if its magnitude is determined to within one-thousandth part, and that in scientific work it is generally sufficient to denote quantities within one-millionth part. Of course, it will be understood that we do not here refer to the very delicate measurements that are now employed in some modern developments of physical science.

Recognising the fact that absolute accuracy in practical work is impossible and unnecessary, a good deal of time may be saved if judicious employment be made of approximate methods of calculation.

The permissible degree of approximation, as already stated, is a matter for discrimination, and may be roughly measured by the number of significant figures known to be accurate in any given quantity.

Examination of published records shows that the coefficient of elasticity of mild steel may be, say, 29,165,000 lb. per square inch under bending tests, 30,866,000 lb. per square inch under tension tests, and 37,050,000 lb. per square inch under compression tests. Yet no useful purpose could be served by taking into account the last six figures in any of these results in calculations relative to the probable resistance of a steel column or beam. In fact, only the first figure is of any practical value, and, as a general rule, the value of the coefficient of elasticity may be put at 30,000,000 lb. per square inch without the least risk.

Similarly if guidance be desired as to the effects of expansion and contraction upon steel or concrete structures, minute accuracy is of no real use. The coefficient of expansion is variously stated at values between 0·0000056 and 0·00000695 for steel, and between 0·0000054 and 0·0000056 for concrete. In either case the value denoted by the last significant figure is very small, and for ordinary calculations an approximate coefficient will serve all practical purposes.

For the same reason approximations are generally accepted for various data employed in calculations relating to the strength of structures, and the practice is further justified by the fact that most determinations of the kind include purely hypothetical data, some of which are known to be more or less inaccurate.

When mathematical processes are conducted by students for the sake of acquiring facility in their use it may be advantageous to work out results with great nicety. But in practical work no benefit is derived from carrying results to several places of decimals, especially if, as often happens, the essential data are only correct to within 20 or 30 per cent.

In dealing with money it is very convenient to express shillings and pence in decimal fractions of a pound.

The following is a simple rule facilitating the conversion of all sums under 1*l.* into decimal parts of a pound:—

Rule.—After the decimal point write down the number of florins contained in the sum to be converted; next write down 0·025 for every sixpence in the remainder, and add 0·001 for every farthing in the final remainder. If the number of farthings is more than twelve add 0·001 more.

Example (1): Convert 17s. 8d. into a decimal part of a pound.

Here there are 8 florins=8×2=16s., 3 sixpences=3×6=1s. 6d., and 8 farthings=2d.

So the decimal fraction is

0·800 =	16s. 0d.
0·075 =	1s. 6d.
0·008 =	0s. 2d.
£0·883 =	17s. 8d.

Example (2): Convert 12s. 9½d. into a decimal part of a pound.

Proceeding as before, we have

0·6 =	12s. 0d.
0·025 =	0s. 6d.
0·014 }	
0·001 } =	0s. 3½d.
£0·640 =	12s. 9½d.

The foregoing rule gives results that are correct to the nearest farthing, which is quite accurate enough for practical purposes. If exact results were required it would be necessary to take into account the difference of value between a farthing, 0·0010415 + or $\frac{1}{960}$ of a pound, and 0·001, or $\frac{1}{1000}$ of a pound.

In practice a penny is the lowest amount that need be considered. Consequently the conversion of shillings and pence into decimals of a pound can be simplified by taking the next penny above or below the stated amount, and accepting 0·004 as the approximate value of each penny.

Then in example (1) we should have

17s. 8d. =	0·875
	0·008
	£0·883

and in example (2) either

12s. 9½d. =	0·625	or 0·625
	0·012	0·016
	0·637	0·641

It should be remembered, however, that if a sum of money be multiplied by a large number the result may not be correct as to pence if fractions of a pound are only expressed to three decimal places.

The multiplication and division of other quantities can be simplified by the adoption of decimal fractions, instead of conventional subdivisions of various units of weight and measurement, in spite of the difficulties presented by the heterogeneous character of British weights and measures.

Among the most convenient decimal equivalents are those given in Table III.

Table III.—Decimal Equivalents of Some Weights and Measures.

Avoirdupois Weight.

1 lb.	= 0·000447	ton (roughly 0·00045).
28 lb.	= 0·0125	,,
56 lb.	= 0·025	,,
112 lb.	= 0·05	,,

Lineal Measure.

1 inch	= 0·0833	foot.
1 foot	= 0·0001894	mile (roughly 0·00019).
1 yard	= 0·000568	mile (roughly 0·00057).
1 pole	= 0·025	furlong.
1 furlong	= 0·125	mile.

Surveyor's Lineal Measure.

1 link	= 0·66	foot.
1 link	= 0·01	chain.
1 link	= 0·000125	mile.
1 chain	= 0·0125	mile.

Square Measure.

1 sq. foot	= 0·111	sq. yard.
1 sq. foot	= 0·000023	acre.
1 sq. yard	= 0·0002092	acre (roughly 0·0002).
1 sq. yard	= 0·000000323	sq. mile (roughly 0·000003).
1 perch	= 0·00625	acre.
1 rood	= 0·25	acre.
10 sq. chains	= 1·0	acre.
1 acre	= 0·0015625	sq. mile.

Cubic Measure.

1 cubic ft. = 0·03704 cubic yd. (roughly 0·037).

Miscellaneous.

1 gallon	= 0·16046	cu. ft. (roughly 0·16).
1 lb. of water	= 0·1	gallon.
1 super foot of planking	= 0·01	square.
1 cubic foot of timber	= 0·02	load.
1 sack of Portland cement	= 0·1	ton.
1 cask of Portland cement	= 0·166	ton.

Complete lists of decimal equivalents for all weights and measures are of great use to those frequently engaged in calculations, and so also are tables giving decimal equivalents for various fractions of yards, feet, and inches, of tons, hundredweights, quarters, and pounds, and of links reduced to decimals of a foot.

The following examples sufficiently indicate the application of approximation to the ordinary requirements of architects and contractors:—

Example (1): Find the cost of 12 tons 3 cwt. 2 qr. 20 lb. of steel bars at 7*l.* 10s. 5d. per ton.

By the use of Table III. the weight is readily reduced to 12·184 tons, and by the rule for metric conversion of shillings and pence the rate per ton is reduced to 7·52*l.*

Then 12·184×7·521 by the contracted method of multiplication (see Article V.) gives

12184
257

85288
6092
244

91624 = 91·624

Inspection at once shows that this is equivalent to 91*l.* 12s. 6d., an amount quite near enough for all practical purposes.

If worked by practice the process would be far more complicated and tedious, as follows:—

			£	s.	d.
			7	10	5 = value of 1 ton.
				12	
			90	5	0 = value of 12 tons.
2 cwt.	= ⅒ of	1 ton ...	15	0	5 = value of 2 cwt.
1 cwt.	= ½ of	2 cwt....	7	6	2 = value of 1 cwt.
2 qr.	= ¼ of	1 cwt....	3	9	1 = value of 2 qr.
14 lb.	= ½ of	2 qr. ...		11	2 = value of 14 lb.
6 lb.	= ⅜ of	14 lb. ...		4	8 = value of 6 lb.
			£91	12	7·8

The extra trouble here involved is certainly not repaid by the discovery that the value of the material is 1·8d. more than that calculated by the approximate method.

Example (2): Find the value of 2 roods 6 perches 5½ sq. yds. 4½ sq. ft. of land at 670*l.* per acre.

By the use of Table III. the area is readily reduced to 0·5387376 acre. Then by the contracted method of multiplication we have

53874
076

323244
37712

360956 = 360·956

This result is at once shown by inspection to be

360*l.* 19s. 1d. If worked by practice the process would be as follows:—

		£	s.	d.	Value of
		670	0	0	= 1 acre.
2 roods	= ¼ of 1 acre ...	335	0	0	= 2 roods.
5 perches	= 1/8 of 2 roods...	20	18	9	= 5 perches.
1 perch	= ⅕ of 5 perches	4	3	9	= 1 perch.
2¼ sq. yds.	= 1/30 of 1 perch...		7	7	3 = 2¼ sq. yds.
2¼ sq. yds.	= 1/30 of 1 perch...		7	7	3 = 2¼ sq. yds.
4½ sq. ft.	= 1/9 of 2¼ sq. yds.		1	4	4 = 4½ sq. ft.
		£360	19	1	

Example (3): Find the cost of 546 sacks (each containing 2 cwt.) of Portland cement at 2*l.* 2s. 7d. per ton.

By Table III. the weight of the cement is 54·6 tons, and the rate is 2·125*l.* Then by the contracted method of multiplication we have

2125
645

10625
850
128

11603=116·03

This result is at once shown by inspection to be 116*l.* 0s. 6d. If worked by practice the process would be as follows:—

First we should have 546×2=1092 cwt. Then the rate 2*l.* 2s. 7d.÷20=2s. 1½d. per cwt.

Next

	£	s.	d.	
	1,092	0	0	= cost at 1*l.* per cwt.
2s. = 1/10 of 1*l.* ...	109	4	0	= cost at 2s. per cwt.
1½d. = 1/16 of 2s. ...	6	16	6	= cost at 1½d. per cwt.
	£116	0	6	

In connexion with all approximate calculations it is important to remember that the number of correct figures in the product of two approximately correct factors is not always so great as the number of correct figures in either of the factors. The degree of accuracy depends upon the relative number of figures in the multiplicand and the multiplier, and upon the value of the figures themselves.

For example, 106·3245×2·5167=267·58686915.

(*a*) Then by taking three figures in the multiplicand and two figures in the multiplier we get the result correct to two places only; for

106×2·5=265·0

Similarly, four figures in tne multiplicand and three figures in the multiplier only give the result correct to two places; for

106·3×2·51=266·8+

(*b*) By taking four figures in each factor we get the result correct to three places; thus

106·3×2·516=267·4+

(*c*) Again, five figures in the multiplicand and four figures in the multiplier give the result correct to four places; for

106·32×2·516=267·5+

If only four places in the product need be correct it is useless to use more figures in the factors than above, as the following results show:—

106·324 ×2·516 =267·511+
106·3245×2·516 =267·512+
106·32 ×2·5167=267·575+

(*d*) By taking six figures in the multiplicand and five figures in the multiplier we get the results correct to five places; thus

106·324×2·5167=267·58+

These workings show that the number of correct places in the product is sometimes the same as and sometimes less than the number of correct places in the multiplier. Hence to obtain results correct to one decimal place it may be necessary to employ five decimal places in the two factors.

THE BUILDERS' EXCHANGE, BIRMINGHAM.

AT the Builders' Exchange, Birmingham, on the 1st inst., Mr. J. Miller Carr delivered a lecture on "Architectural Ceramics." Mr. John G. Dunn was in the chair. In the course of his lecture, which was illustrated by a number of cartoons and specimens of artistic pottery for building purposes, Mr. Carr said there were in Birmingham a number of important examples of the use of the ordinary colours of terra-cotta in buildings. He complained, however, that during the last five years, and especially during the last three years, Birmingham had not, in the matter of decorative architecture, acted up to its motto of "Forward." There had been such feverish anxiety in all the more important buildings to make the work cheap that they had omitted to make it nice, and had not attained to that desirable quality expressed by the French word *distingué*. As far as architectural ceramics were concerned Birmingham had only touched the hem of the garment. Dealing with new uses to which terra-cotta might be turned, Mr. Carr said that some years ago he was asked if he could not apply the methods of manufacture of slab mosaic to the purpose of putting a representation of Warwick Castle on to an old wall about 30 ft. by 15 ft. He at once replied that it could be done with striking effect, and, in order to carry out the idea, he put a tracing over a steel engraving of the castle, subdued all the worrying details, and expressed the subject by just a few broad fields of colour separated by broad outlines. The lecturer gave instances of other directions in which this principle might be applied. By the use of simple means coupled with artistic designs it was possible to express in a permanent and architectural way on the exterior of a building the purpose of any kind of manufacture or business that might be carried on within. Had they not got nearly tired of the vulgar attempt to shout each other down on the part of shopkeepers by each striving to put larger letters across his front than his neighbour could? After all, the shopkeeper only proclaimed his name, but it would be much better if he could make his building itself to declare his craft. The walls of many of the principal hospitals in the country had within the last few years been enriched and rendered almost vocal by illustrations of various nursery rhymes painted on the tiles. The primary object in such cases was to tell the story effectively, but still to do it in such a way that the panel should be manifestly a part of the wall. Concluding, the lecturer did not deny that Birmingham had progressed architecturally. He remembered the ramshackle rookeries which existed twenty-five years ago where Corporation-street now stood. Birmingham was, indeed, a fine city, but it was only a body—well laid out and compact. If it could attain to the dignity of a soul, what possibilities there were! The city might be the Venice of to-day. There was no need to go to Italy for marble or to Venice for glass. Birmingham had far richer colours at its command, and in wares that would stand the local climatic conditions better than anything brought from abroad.—On the motion of Councillor Tonks, seconded by Mr. J. C. Nicol, a very cordial vote of thanks was passed to Mr. Carr.

NOTTINGHAM MASTER BUILDERS' ASSOCIATION.

SOME sixty members and friends of the Nottingham Master Builders' Association dined at the George Hotel, Nottingham, on the 2nd inst., on the occasion of the annual dinner. The President for the year, Mr. F. H. Fish, occupied the chair at the dinner, and was supported by the Mayor of Nottingham (Councillor Arthur Cleaver), Ald. Sir John Turney, Mr. W. D. Pratt, Mr. E. R. Sutton, Mr. A. S. Smith, of Birmingham (hon. secretary of the Midland Centre of the National Federation), and Mr. R. Weston (President of the Derby Association), and others. The loyal toast was honoured, Mr. H. Vickers proposed "The Mayor, Magistrates, and Corporation," and the Mayor briefly replied.

Mr. Jas. Wright submitted "The Architects and Surveyors." The Royal Institute of Architects, the Builders' Institute, and their own federation had, he said, produced a recognised form of contract, which was believed to be a reasonable, businesslike, and equitable document, and it was very desirous that this should be generally adopted. The questions of prime costs and of specialists outside the builders' jurisdiction wanted careful handling. It had become a very general practice for specialists to be appointed by architects to carry out such works as the construction of steel floors, concrete and wood-block floors, and other works; these specialists came on to the work without notice to the builders, and treated the latter as interlopers, when, after all, it was the builders who were responsible for the contracts. They accepted the position of introducing the specialists, but he thought that notice should be given to the builders, and that the specialists should be treated as sub-contractors. That was provided for by the form of contract which he had mentioned, and he hoped to see it adopted.

Mr. W. D. Pratt, in reply, said that education was the question of the hour, and he was glad to know that everyone connected with the architectural profession was using every endeavour to make himself conversant with all that was necessary for the profession. He hoped, too, that builders and workmen would take their share of this advance in education, and that the builders would urge their apprentices, and pupils, and the men under their care, to take advantage of the great opportunities that were now offered by the University College and School of Art in acquiring technical knowledge that they did not acquire in the workshop. They would all benefit if the workmen would take pride in their work. Mr. J. W. J. Barnes and Mr. E. R. Sutton also responded.

Ald. Sir John Turney proposed "Success to the Builders' Federatoin." For the past thirty years, as chairman of the Works and Ways Committtee, he had met not only architects, but builders, and he always fancied that there were no differences between them. He supposed that the building industry, with the allied trades, was perhaps the second industry in the country. There were over half a million people engaged in the work, they paid more than 74,000,000*l.* a year in wages, and invested in their undertakings was a sum of upwards of 150,000,000*l.* Many people could scarcely realise the magnitude of such an undertaking. They were engaged in building up big cities and towns, and though he admitted that the men who found the money had a good deal to do with it, the builders and architects were, after all, practically responsible for the work, for the appearance of the town, and the character of the work in it. Every consideration, therefore, should be given to the men who undertook such work, and they in their turn should strive to do their duty. He was afraid that some of the builders never knew when the price was low enough. He had had some rather peculiar tenders before him that evening. Some people seemed to think it was a great honour to work for a Corporation, but the Corporations did not want things at less than cost price. They were prepared to give money for value, but expected value for the money they gave.

Mr. A. S. Smith said that employers were beginning to ask themselves what the rise of labour in the recent elections portended? For some years past they had considered that they stood in a favourable position towards trade unionism, because of the common-sense judgment of the late Lord Chancellor in the Taff Vale case. They might have said "Now is our time to go for trade unionism," but that had not been the case. Their policy, although they were in the stronger position, had been a pacific one, and the Builders' Federation had endeavoured to draw closer the friendly bonds between employers and employed. They had endeavoured to reach the headquarters of the unions, and to smooth away all matters of disagreement. They had even gone further and established in many parts of the country—they hoped to see them established in all parts shortly—Conciliation Boards, with the object of preventing strikes and lock-outs, and settling all disputes. They had, indeed, tried in every way to conciliate rather than irritate the workers. But if the spirit of enmity was to be shown, and employers were to be made the target and butt because they were capitalists, he was afraid that those who had money invested in business would be compelled to withdraw it. The Trades Disputes Bill, which sought to place trade unions above the common law of the land, was class legislation of perhaps the worst possible kind, and would bring evil instead of good. Mr. R. Weston also replied. Mr. T. Barlow toasted "The Visitors," for whom Mr. J. Sander and Mr. F. W. Amphlet responded.

THE REGISTRATION AND TRAINING OF PLUMBERS.

A CONFERENCE of representatives of municipal, educational, and labour interests, convened by the Plumbers' Company, was held on Wednesday last week, at the Guildhall to consider the question of the registration and training of plumbers and other skilled workers. Lord Selby presided.

The Chairman said that they had met to discuss matters connected primarily with the efficiency of that trade, but also to consider how to improve the efficiency of the workers in other trades. The methods by which it was sought to obtain that result were principally the registration and technical education of the workmen. The Bill for the registration had passed the second reading, but it had never got so far as the third reading stage. With regard to the apprenticeship question, it might be that a period of seven years was too long in view of the superior education that a lad received in these days. Apprenticeship should be coupled with a continuation of education in technical schools during some part of the day or in the evening.

Mr. W. D. Caröe, Master of the Plumbers' Company, said that the Plumbers' Company, in doing what they could for the plumbing trade, had no "axe to grind." They were prepared to lend their influence and to spend their money for the purpose of improving the craft, just as other City Companies devoted their time and money to establish and maintain technical institutions of various kinds. The three things which they had in view were the education, the examination, and the registration of plumbers, and in all they had done they had had the hearty support of the men themselves. The central office, as it were, of the movement was the office of the Plumbers' Company, but they had district councils all over the country affiliated to them, who held examinations of their own, and whose successful candidates were accepted for registration by the Company. The examinations were practical as well as theoretical. It had been borne in upon him, as an architect, that the only real system of training for craftsmen was that of apprenticeship. The work which the craftsmen of the past did, as was to be seen by an inspection of ancient buildings, could not be surpassed in the present day, and was seldom equalled. It was surprising to see, as he often had seen, work done thirty or forty years ago in

restoring old buildings falling into decay, whereas the work of 600 years ago was perfectly sound. It was marvellous to observe the way in which in the XVth and XVIth centuries, particularly in Spain, the small technicalities of dealing with masonry were carried out without the slightest effort apparently, and yet always right. Architects nowadays had to give workmen a drawing for all those things. It was important that the working man should be educated to use his brains, and not be merely a machine to carry out drawings. The only sound work which could be accomplished was work to which some definite tradition was attached, and he believed that tradition could be acquired and passed on from one to another only through the responsible training which the apprenticeship system made possible.

Dr. Macnamara, M.P., proposed a resolution expressing the opinion that the time had come when a more systematic training than had hitherto prevailed among the industrial workers of this country was imperatively required, in order that our skilled trades might maintain and increase their efficiency, and so hold and improve their position in face of the prevailing conditions of modern commercial and industrial competition. Referring to the 200,000 boys in England and Wales of thirteen or fourteen years of age who left school every year and were obliged to start work at once at a small wage owing to the poverty of their parents, he said that after a few years they were thrown on the labour market without any skilled capacity, and helped to swell the ranks of the unemployed. He advocated the provision of maintenance scholarships for these lads, equal to their small wages, with a view to their being trained to follow a trade.

Mr. Bostell seconded the resolution, and, after considerable discussion, in which Mr. Jowett, M.P., Mr. Priestley, M.P., Mr. Hooper, M.P., Dr. Crawford, and others took part, the resolution was carried.

A committee was appointed to consider the conclusion arrived at by the conference and to report to an adjourned meeting.

COURT OF COMMON COUNCIL.

THE Lord Mayor presided at a meeting of the Corporation held at the Guildhall on Thursday last week.

Bishopsgate-street Improvement.—In reply to a question, Deputy Sir George Woodman said that an effort was being made to persuade the London County Council to reconsider their decision in connexion with the proposed widening of this street, and to induce them to contribute to the cost, on condition that the improvement was carried out gradually.

Sir Christopher Wren's House.—Mr. Deputy Sayer moved that the consideration of the desirability of purchasing the stone steps belonging to the school-house which project into Love-lane, Eastcheap, and also the projecting front of No. 14, Love-lane, for the purpose of widening this thoroughfare, should be referred to the Improvements and Finance Committee, which was agreed to. The Lord Mayor laid before the court a letter which he had received from the President of the Local Government Board enclosing a letter from Mrs. S. Arthur Strong on this subject. The building, the letter stated, was an excellent example of XVIIth century architecture, containing some finely-carved chimney-pieces and handsome panellings and ceilings. These decorations had been removed preparatory to the house being demolished. Mrs. Strong appealed to the President of the Local Government Board to use his endeavours to secure the house to the nation as a public museum or for some similar purpose. In the discussion that followed, Mr. Rome expressed the hope that immediate steps would be taken to preserve the building, while Mr. Lile advised caution, reminding the court of the "historic" building in Fleet-street recently restored by the London County Council. The communication was referred to the Library Committee.

Paving Works.—The following recommendations of the Streets Committee for paving works required during the year were agreed to :—

"That the carriageway of Aldermanbury-avenue be laid with asphalt at an estimated cost of 190*l.*

That the footways of the undermentioned streets be laid with asphalt at an estimated cost of 900*l.*, viz. :—

Finsbury-pavement west side (Short-street to Ropemaker-street).
Billiter-street (half east side).
Farringdon-street (both sides from Ludgate-circus, half way to Plumtree-court).
Ludgate-circus, north-east and south-east quadrants.

That the footways of the undermentioned streets be relaid partly with new and partly with the existing York stone at an estimated cost of 1,000*l.*, viz. :—

West Smithfield, west side (Giltspur-street to Long-lane).
London wall (Moorgate-street to Blomfield-street).

That the footways of the undermentioned streets be relaid with existing York stone, the deficiency being made good with the best of the old York from the streets where asphalt is to be substituted, at an estimated cost of 265*l.*, viz. :—

Farringdon-street (both sides from the end of the asphalt to Plumtree-court).
Billiter-street (half east side).

That the carriageways of the undermentioned streets be relaid with asphalt at an estimated cost of 10,600*l.*, viz. :

London-wall.
Cheapside.
Finsbury-pavement.
Moorgate-street (London-wall to Telegraph-street).

That the carriageways of the undermentioned streets be repaved with creosoted wood blocks at an estimated cost of 1,330*l.*, viz. :—

Old Bailey.
Plumtree-court.

For altering the line of footway pavement in London-wall, between Moorgate-street and Blomfield-street; and that the necessary works be carried out at an estimated cost (exclusive of the repaving) of 750*l.*, for diverting pipes, etc.

That the contract with the Val de Travers Asphalte Company, for maintaining the carriageway pavement of Mansell-street, be extended for a further period of one year at 1s. 6d. per yard super per annum, being the same price as the existing contract."

Underground Conveniences.—The same committee were authorised to expend 1,600*l.* on the provision of additional lavatory basins and for accommodation for women at the conveniences in Aldgate High-street and Bishopsgate-street Without.

Milan Exhibition.—The Library Committee were empowered to make arrangements for an exhibit from the Corporation to the International Exhibition at Milan, with instructions to confer with those committees controlling suitable objects for exhibition.

Ventilation.—The General Purposes were authorised to spend 200*l.* in improving the ventilation of the Egyptian Hall at the Mansion House.

OBITUARY.

MR. J. PRICE.—Mr. John Price, City Surveyor of Birmingham, died on the 6th inst. at Burnham, Somersetshire, where he had gone for a short rest. Mr. Price, who was in his fifty-first year, was educated at Sandbach School, Manchester Grammar School, and the Victoria University. In 1871 he entered the office of Mr. Hartley Watson, a civil engineer, of Manchester, and was engaged in a number of important engineering works. In 1884 he became engineer and surveyor to the Toxteth Park Local Board, but upon that district becoming absorbed in the city of Liverpool he was appointed assistant city engineer. In 1896 he went to Birmingham as City Surveyor and deputy engineer to the Tame and Rea Drainage Board. Since his appointment Mr. Price had carried out a number of important works in the city. He was a member of the Council and of the Board of Examiners of the Incorporated Association of Municipal Engineers, a member of the Institution of Civil Engineers, and a Fellow of the Surveyors' Institution. He had served as President of the Birmingham Association of Engineer Students, and he was a vice-president of the Municipal Officers' Association. Mr. Price leaves a widow, one son, and two daughters. Sympathetic reference to the death of Mr. Price was made at the meeting of the Birmingham City Council. The Lord Mayor said that every member would be sorry to hear of the death of the City Surveyor after a short, acute illness, and he would move "That this Council expresses its deep regret at the sudden death of Mr. John Price, the City Surveyor; it records its appreciation of the ability and energy displayed by him in the duties of his office; and it respectfully tenders to Mrs. Price and her family its sincere and heartfelt sympathy in their great bereavement." Mr. Price, he reminded the Council, was appointed City Surveyor in 1896, and all who were brought in contact with him must have been struck by his unbounded energy and devotion to the interests of the Corporation. Alderman Cook seconded the resolution, which was carried in silence, the members standing.

GENERAL BUILDING NEWS.

BAPTIST CHURCH, HULL.—The new Baptist church on the Beverley-road was opened on the 22nd ult. The church occupies a site at the corner of Trafalgar-street, and the buildings are "in a late period of Gothic freely treated." A gable, flanked on one side by a turret and on the other by a tower, terminating in a cupola and spirelet, gives prominence to the block. A lych gate forms a feature in the front. Internally the church is divided up into nave and aisles by a traceried timber arcade. The seating, which is of fumed oak, and has curved seats and backs, and traceried and carved pew ends, is semi-circular on plan. The pulpit and platform furniture are of fumed oak, and traceried and carved, the whole having been designed by the architects, Messrs. George Baines & Son, London. Pastor's and deacons' vestries are provided, together with two choir and baptising vestries, the latter having an approach direct from the baptistry (which is placed under the pulpit). Cloak rooms are provided near the main entrance. There is a church parlour, 36 ft. by 20 ft., having ladies' cloak-room in connexion; also a retiring-room of suitable size is given. The contract amount of the building scheme is 5,500*l.*, but the total cost, inclusive of the organ, will be about 9,000*l.*

NEW CHURCH, HANDSWORTH.—The foundation-stone of the new church in Grove-lane in connexion with St. James's Church, Handsworth, was recently laid. The church will consist of a nave with north and south aisles, widening into double transepts on either side towards the east end. There will be a chancel arch between the nave and chancel, with another similar arch dividing the chancel from the sanctuary. The east end will be apsidal. The walls will be chiefly composed of Black Country brown bricks and the roof will be covered with rough Bangor slates. Inside the brickwork will be relieved with stone and a certain amount of buff brick. The seating accommodation is to be for 700 persons. The estimated cost of the new structure is between 4,000*l.* and 5,000*l.* The architects are Messrs. Chatwin & Son, of Birmingham.

CHURCH RESTORATION, LANTEGLOS-BY-FOWEY.—The restoration of the church at Lanteglos-by-Fowey has just been completed. The work involved considerable care, for the north arcade was leaning towards the aisle about 12 in., and it was held in that position by several iron tie-rods: the north wall also being affected by the outward thrust of the roof. All the XIVth and XVth century roofs were found in their original position. They have been repaired *in situ*, and the arcade has been partially straightened. The whole of the floor had to be dealt with. Oak block flooring has been laid on the spaces occupied by the mediæval benches. The chancels have been paved with Devonshire and Sicilian marbles, and the old altar of the south chapel has been restored. The original west entrance under the tower, which had for many years been blocked, is now opened out. It is proposed to rehang the bells, and the tower has been strengthened for the purpose. The pinnacles, which were found in the churchyard, have been restored to their original position. The cost of work already executed is over 2,100*l.* The architect is Mr. Edmund Sedding, of Plymouth.

WESLEYAN METHODIST CHURCH, CHORLEY.—The New Wesleyan Methodist Church, Eaves-lane, Chorley, was opened recently. The auxiliary rooms comprise minister's vestry and classroom accommodation. Externally the building is faced with red plastic bricks and stone dressings, with ornamental relief carving over the large window above the front entrance. The heating is by hot water at low pressure. The church will seat 320 adults, or a mixed congregation of 400 persons. Mr. W. Hugill Dinsley, Chorley, is the architect, and Mr. Leonard Fairclough, Adlington, the contractor.

RESTORATION OF FOBBING CHURCH, ESSEX.—Works of restoration have been carried out at the old church of St. Michael, Fobbing, under the direction of Mr. Hodgson Fowler. The restoration has consisted of practically a new roof and extensive repairs to the tower; while in the interior the centre pillars have been removed and new ones erected. The Norman portion of the church was found to be of chalk, so soft that it crumbled to the touch, and there were no foundations to the outer wall. A carved and coloured stone image of the Virgin and Child, of XIVth century date, was found during the operations.

RESTORATION OF GLOUCESTER CATHEDRAL.—The Lord-Lieutenant of Gloucestershire is starting, as a matter of urgency, a movement for carrying out immediate works of repair to the fabric of Gloucester Cathedral. The resident architect (Mr. F. W. Waller) has made to the Dean and Chapter, as described by Lord Ducie, "a disquieting report." The tower is urgently in need of most careful reparative work. Not only are the more ornamental features rapidly disappearing, but the fabric of the tower is being seriously damaged, owing to the perishing of the protecting mouldings of the stonework in many places. Wet has penetrated through the large joints, and is gradually loosening the stonework, and even showing on the inside of the building. A recent fall of some of the stonework connected with the groining of the choir roof close by the tower has been of a very alarming nature. In addition the lead roofs of the nave and south aisle are in urgent need of reparation and renewal. They are all much worn, and the damp is penetrating and seriously injuring the timbers of the roofs. These roofs must be largely renewed. Three of the pinnacles, two on the west front and the other on the south transept, were in danger of falling. One has been repaired, and the other two must be taken in hand without delay. Other less important works are also urgently needed. If these various matters are seriously taken in hand at once the architect is of opinion that grave and threatening damage of the great fabric will be averted in time. His general estimate of the cost of these essential works amounts to 8,150*l.*

CHURCH RESTORATION, YARMOUTH.—As a parochial memorial to the late Earl of Chichester, the north transept of St. Nicholas Church, which for some years has stood in need of repair, has been restored under the direction of Messrs. Olley & Haward, ecclesiastical architects. The walls have been recemented, the roof painted white, with vermilion stars, an Early English window on the western side, and the double niche on the

eastern wall restored, and the floor space re-arranged. In addition to the restoration, a new scheme of lighting has been adopted in the restored transept.

GORDONBROCK-STREET COUNTY COUNCIL SCHOOL, BROCKLEY.—This school, which has recently been publicly opened, has been designed by Mr. Thomas J. Bailey, the Council's architect (Education), and consists of three principal blocks, each of one story, and planned for elementary teaching in three complete departments with power of future extension, a large central hall being included in each case. The internal finish of the buildings is in plaster with salt-glazed dadoes and flat ceilings to the classrooms with open timbered roof, top lighted, to each of the three halls. Externally the buildings are finished with picked stock facings enriched by red brick dressings, the angles quoined, the eaves and gabled ends having a moulded and enriched red brick cornice, and the roofs being covered with Broseley tiles. Spacious playgrounds are also provided. The accommodation is as follows:—Boys, 328; girls, 328; and infants, 340; each department being accommodated in seven classrooms and provided with ample cloak, lavatory, and store accommodation, together with rooms for the head and assistant teachers respectively. A cookery and laundry centre has been provided in a separate building at the north-east corner of the site. Also a schoolkeeper's house facing Gordonbrock-street. The amount of the contract was 22,863*l.*, and the contractor is Mr. William Downs, of Hampton-street, Walworth.

COUNCIL SCHOOLS, CALTON-ROAD, GLOUCESTER.—These buildings consist of three blocks and comprise mixed school, infants' school, and cookery and laundry centre, with separate playgrounds for boys, girls, and infants, each department having its own shelter sheds and out offices. The mixed school provides accommodation for 500 pupils in 10 classrooms arranged round a central hall, 61 ft. by 32 ft., with separate entrances, cloak-rooms, and lavatories for boys and girls, and rooms for head and assistant teachers and school store on each side. The infants' school gives places for 310 children in 6 classrooms, also grouped round a central hall, 56 ft. by 25 ft., with cloak-room and lavatories and head and assistant teachers' rooms, stores, etc. The cookery and laundry is provided with distinct accommodation for each department, both containing general school-room, cloak-room, and lavatory. The schools are built of bricks from Mr. Whitfield's yards on Robinswood Hill, with Bath stone dressings, and the roofs are covered with Staffordshire tiles. The buildings are warmed throughout by hot water from a central apparatus room placed under the cookery school, and the system of pipes and radiators has been installed by Messrs. Beaven & Sons (Gloucester and London), under the direction of Mr. E. J. Cullis (Gloucester). The schools are lighted throughout by electricity put in by Messrs. Woodward & Co. (Gloucester). The whole of the classrooms are fitted with oak dual desks, supplied by Mr. James D. Bennet (Glasgow), and the other furniture throughout the buildings is provided from the architect's designs by the Educational Supply Association of London, and is executed in orham wood. The fixed blackboards are from the Bennet School Furnishing Company (Glasgow). The window blinds have been fitted by Mr. C. P. Price (Gloucester). The whole of the builders' work has been carried out by Messrs. J. Byard & Sons (Gloucester), and Mr. W. H. Bush has acted as clerk of works. The whole of the work has been carried out from the designs and under the immediate superintendence of Mr. Walter B. Wood, architect, of Gloucester. The entire cost of the building, with furniture and fittings, and all attendant expenses, will probably amount to about 14,000*l.*

SCHOOL, BARNSLEY.—The newly-erected mixed elementary school, in Doncaster-road, Barnsley, has just been opened. The accommodation is for 420 mixed and 360 infants. The building, erected from designs by Mr. E. W. Dyson, C.E., is near the St. Peter's Church, with a frontage to Doncaster-road, and has four entrances. The classroom arrangement has been adopted, the infants being on the ground floor, where six classrooms, with central hall, teachers' rooms, cloak-rooms, and lavatories are provided. The boys and girls are on the upper floor, the entrance being provided by a staircase on either side of the building. A marching corridor of fire-proof construction connects the staircases, giving access to seven classrooms, with cloak and teachers' rooms. Two of the main classrooms are divided by glazed sliding partitions, enabling the formation of a central hall. There are drill and play sheds and play grounds. The building is heated on the low-pressure system, and the lighting by electric light. The contractors are Messrs. R. Ruffles, mason and bricklayer; A Owram, joiner; Dawber & Townsley, slaters; C. Dryden, plasterer; D. Dransfield, plumber and glazier; Snowden & Son, painters; A. Chappell, carving; Saunders & Taylor, Manchester, heating; Laurance & Son, ventilators; J. Taylor, electric lighting; C. Downing, wrought ironwork.

PROPOSED CENTRAL LIBRARY FOR EAST HAM.—At a recent meeting of the East Ham Town Council the Libraries Committee reported that they had directed the Engineer to prepare and submit to them plans and estimates for a central library to be erected adjacent to the Town Hall.

WORKMEN'S INSTITUTE, MARDY.—A workmen's institute has been opened at Mardy. The cost of the building alone amounted to 6,000*l.*, whilst the fittings, gymnasium, and library, etc., made up the amount to nearly 9,000*l.* The institute is situated at the corner of Ceridwen and Church streets, and is built of native stone, with Forest of Dean stone dressings. In the basement at the entrance to Church-street are a large billiard-room, gymnasium, lecture-room, and games-room. The ground floor entrance is from Ceridwen-street, and contains a vestibule, ladies' room, refreshment-room, magazine-room, and a reading-room. On the first floor is the hall, which, with the gallery, is capable of providing seating accommodation for 1,200 people. The building is lighted by both gas and electricity, the electrical fittings being supplied by Messrs. Clay Brothers, Cardiff, whilst the heating apparatus, which extends throughout, was installed by Messrs. Stott & Co., Oldham. The building was erected by Mr. J. B. Mundy, contractor, Mardy, from plans by Mr. E. Williams, architect, Cardiff.

FREE LIBRARY, STAPLEFORD.—The foundation-stones of the free library which the Stapleford Parish Council are building in Towle's-avenue, were laid a short time ago. The building is to be of red brick and stone. In addition to the library there will be a reading-room, lending library, librarian'sroom, and ladies' room. Mr. R. Smith, of Long Eaton, is the architect, and Mr. F. Martin, of Stapleford, is the builder.

PUBLIC LIBRARY, BARRY.—A new public library has been erected in Holton-road, Barry Dock, at a cost of 8,000*l.* The library forms part of a group of municipal buildings, which, when completed, will include municipal offices and town hall. At the lending library there are stacks for 30,000 volumes. The reference library is provided with accommodation for 4,500 volumes and seating for sixteen readers. The news-room is situated to the right of the hall, and contains an area of about 1,375 sq. ft., with accommodation for sixty readers, in addition to newspaper stands for twenty-five persons. On the first floor is a committee-room, which for the present is to be used as a council chamber by the urban council. A reading-room for ladies is situated in the front, at the head of the stairs. The caretaker's apartments are on the second floor. The architects were Messrs. C. E. Hutchinson and E. Harding Payne, of London. Mr. Watkin Williams, of Cardiff, was the builder, and Mr. G. Sanders clerk of works.

WESLEYAN INSTITUTE, SHEFFIELD.—On the 1st inst. the institute connected with Trinity Wesleyan Church, Highfield-place, Sheffield, was formally declared open. Mr. C. B. Flockton was the architect, and he has taken advantage of the difference in the level between the ground at the front and at the back of the building, and has obtained two floors on the ground level. The institute contains on the lower ground floor two classrooms, each 16 ft. square, and accommodating twenty-six persons, and a third classroom, 33 ft. by 17 ft., capable of holding fifty-five persons. Close at hand are the store-rooms and kitchen, with two boilers. Upon the upper ground floor is the ladies' room, 33 ft. by 16 ft., and the girls' room, 33 ft. by 22 ft., together with a small classroom, about 15 ft. square, cloak-rooms, and lavatories. The young men's room is on the first floor, and is 39 ft. by 33 ft.

PROMENADE PAVILION, BRIDLINGTON.—On the new Parade extension works at Bridlington the Corporation is about to erect a pavilion and café. The Parade extension works have recently been completed at a cost of about 25,000*l.* The pavilion is being constructed of wood, iron, and glass, and, with furnishing, will cost 10,000*l.* It has three domes, and is to be capable of accommodating 3,500 people. It will have a sloping floor, and there will be a gallery extending around the building. There is to be a stage, with manager's-room, band-room, and dressing-rooms. Around the sides of the building lounges are to be provided. The building is to be heated with hot water pipes, and is to be lighted by electricity. Extending the full frontage of the building is a wide balcony and promenade, and doors lead from the gallery inside the building to this balcony. Adjoining this pavilion will be a café, 60 ft. by 50 ft. in area, with flat roof. This roof is to be laid out as tea-gardens. The architects for the pavilion and café are Messrs. Mangnall & Littlewood, architects, Manchester. The Parade extension works have been designed by the Borough Engineer, Mr. E. R. Matthews, C.E.

PROPOSED DISTRICT BATHS, WYKE.—The question of providing district baths at Wyke was again considered by the Baths Committee of the Bradford Corporation recently. The City Architect (Mr. F. E. P. Edwards) submitted three alternative plans, showing how the land could be adapted for the erection thereupon of a building suitable for baths and a free library. One of these, providing a swimming bath 60 ft. long by 20 ft. wide, douche and slipper baths for men and women, and premises for a free library, was approved by the committee for presentation to the City Council.

SANATORIUM, BARRASFORD.—A new sanatorium for consumptive patients has been established at Barrasford on the North Tyne. The building stands in a site of sixty acres, twenty of which are pine plantation. The cost has been about 20,000*l.* The buildings were designed by Messrs. Nicholson & Dotchin, Newcastle. The contractors for the various works have been as follows:—Foundation, drainage, and road-making, Messrs. Middlemiss Brothers, Newcastle; superstructure, Messrs. Speirs & Co., Glasgow; plumbing, Messrs. Edwin Joicey, Ryton; heating and hot water engineering, Messrs. R. J. Ward & Co., Newcastle; electric lighting, plant and bells, Messrs. Falconar, Cross, & Co., Newcastle; boilers and boiler setting, Messrs. Arnott & Co., Coatbridge (through their agent, Mr. W. J. Richardson, Newcastle); fencing and tree planting, Messrs. Fell, Ltd., Hexham; sanitary fittings, Messrs. Henry Watson & Co., Newcastle. The arrangements for the water supply were carried out under the direction of Mr. Alfred S. Dinning, Newcastle. The contract for the sinking of the well has been executed by Mr. Robert Wood, of Morpeth. The laying of the water mains and the construction of the reservoir have been carried out by Mr. William Carr, of Gosforth; and the wind motor, with auxiliary petrol engine and pump, have been constructed and erected by Messrs. H. P. Sanderson & Co., Ltd., of Bedford, through their agent, Mr. W. J. Richardson, Newcastle.

TOWN HALL, OSSETT.—The foundation-stone of the new Ossett Town Hall was laid by the Mayor (Mr. J. H. Nettleton) on the 27th ult. The architects are Messrs. W. Hanstock & Son, Batley, whose plans were selected in a competition in which the designs of over thirty architects were adjudicated upon by Messrs. Kirk & Son, of Huddersfield and Dewsbury. The building is being erected in the Market-place, and is estimated to cost altogether about 20,000*l.* It includes offices for the borough officials and a public assembly room to seat 1,300 persons. From the central entrance direct approach is obtained to all the principal municipal offices. The central entrance will be 10 ft. wide, and, in addition to serving the offices, will have a direct approach to the public hall in the rear. From this main corridor cross corridors 6 ft. wide are provided to the main offices. The accommodation on the ground floor will consist of magistrates' retiring-rooms, accountants' offices, rate offices, gas offices, surveyors' and sanitary inspectors' departments. Directly from the 10-ft. corridor will rise the main staircase to the first floor level, which will also act as an approach to the gallery of the public hall. The first floor accommodation will provide council chamber, mayor's parlour, committee rooms, education room, and town clerk's department. The public hall will be to the rear of the municipal section, with the principal entrance to Dale-street, and if so desired may be entirely cut off from the municipal section. The accommodation will consist of cloak rooms for ladies and gentlemen, large crush hall, assembly room, orchestra, chorus, and artists' rooms. The police-court section is again arranged independently and separately from the municipal and public hall sections, with an approach from the side. It will consist of lavatories, solicitors' rooms, witnesses' waiting-rooms, with borough court. In the basement there will be weights and measures offices, prisoners' waiting-rooms, store-rooms, gas show rooms, large shop for examination of gas fittings, cooking kitchens, heating vault, etc. The buildings are being constructed of Delph wallstones to front and sides, white glazed bricks to areas, and Oxenhope ashlar to walls throughout. The floor of corridors will be laid in concrete and mosaic, and the floors of rooms in wood. The large hall is to be finished in ornamental plaster work, with a decorated ceiling. The corridors will be lined with tiling. A clock turret is also provided.

CONVALESCENT HOME ENLARGEMENT, HORSFORTH.—The work in connexion with the enlargement of the Springfield Convalescent Home is expected to be completed by the end of the year. The home at present accommodates thirty-two patients and an administrative staff of seven. When the enlargements have been completed there will be accommodation for sixty-six patients and a staff of fourteen. The present building will be adapted to the purposes of the administrative department, and the new wing will provide the patients' quarters. The administrative department will be so arranged as to isolate the staff from the patients, but there are connecting doors on the ground and first floors for the use of the matron. The estimated cost of the scheme is 3,500*l.* The architects are Messrs. Hobson & Co., their designs being accepted in open competition.

COURT-HOUSE, BLOFIELD.—A new court-house has been erected at Blofield. The building contains, besides the court, a room for the

magistrates to hold private consultations, a room for solicitors to consult their clients, a waiting-room for witnesses, and a public waiting-room. In the passages connecting these rooms there is a dado of blue bricks with dark red skirting. Lavatory accommodation is also provided. Adjoining the court-house are large cells. The County Surveyor, Mr. T. H. B. Heslop, was the architect; Mr. T. Gill, of Rupert-street, Norwich, builder; Mr. W. Crotch, of Magdalen-road, Norwich, plasterer; Messrs. C. Payne & Co., Bedwell-street, Norwich, fitted in the heating apparatus; Mr. E. Potter, of Chapel Field-road, was responsible for the stone work; and Messrs. Turner, Barnes, & Wright, of Norwich, were the furnishers.

PUBLIC MARKET, SCUNTHORPE.—The new public market at Scunthorpe was opened on the 22nd inst. The principal building is the hall, which measures 95 ft. by 60 ft., clear span, equipped with six butchers' shops, one refreshment-room, one general dry goods store, eight fruiterers' and florists' stands, and sixteen other stalls, as well as a ladies' lavatory and superintendent's office. The roof is matchlined, stained, and varnished, and is carried by braced steel principals of 60-ft. span; the floor is of concrete, and the whole of the shops, etc., are painted cream, outlined with blue, and the roof principals with light blue. The walls are lined with glazed bricks to a height of 5 ft., and the building is lighted by eight pendant arc incandescent lamps (Humphrey's patent) each of 300 candle-power. The open markets are laid out in a modern style with open-fronted sheds, paved with red chequers, and covered cattle pens. The remainder of the market is paved throughout, and gives accommodation for 280 sheep, 120 beasts, and 60 pigs, besides weigh bridge, weigh house, and a public convenience. Slaughter houses are also provided. The plans for the work were prepared by Mr. A. M. Cobban, the Council's Engineer, and the contract let to Mr. W. Pallister, a local builder, for 2,437*l*.

STAINED GLASS AND DECORATION.

NORTON CHURCH, NEAR EVESHAM.—The stone-work of one of the windows, put in in 1840, on the south side of the nave of this church, has been removed, and a new window put in its place, copied from one of those formerly existing, a specimen of which remains. The new window, of two lights, has been filled with stained glass, showing St. Luke drawing the portrait of the blessed Virgin, and St. Cecilia at the organ, with a background of local scenery. The architect was Mr. C. Ford Whitcombe, of Broadheath, Worcester, and the artist Mr. H. A. Payne, of Birmingham.

SANITARY AND ENGINEERING NEWS.

EXTENSION OF BURNLEY WATERWORKS.—The Burnley Corporation have decided considerably to extend their present water storage, and Mr. Diggle, C.E., consulting engineer, has presented his report, in which he advises the making of a reservoir in the Thursden Valley, with an 88 ft. embankment, to hold 400 million gallons. The report is now being considered by the Water Committee.

DRAINAGE SCHEME, WEST RUNTON.—A Local Government Board inquiry was held recently at the West Runton Hotel by Mr. P. M. Crosthwaite, M.Inst.C.E., with regard to the application of the Erpingham Rural District Council to borrow 1,900*l*. for works of drainage in West Runton. The engineer of the scheme is Mr. A. F. Scott, of Norwich and Cromer.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The partnership between Messrs. Tait & Harvey, architects, of Exeter, is dissolved, and Mr. C. J. Tait is now carrying on practice in his own name at 57, High-street, Exeter.——The club which was formerly entitled "The Architectural Association Old Day-Students' Club" has changed its title to "Old Architectural Association Day-Students' Club."——Mr. A. G. Cross, F.S.I., has been elected Honorary Secretary of the Quantity Surveyors' Association in place of Mr. F. B. Hollis, who has resigned the position. The address of the Association still remains 17, Bedford-row, W.C.——It is announced that Mr. Arthur Pye Smith has been elected Chairman of the Board of the St. Pancras Ironworks Co., Ltd., and Messrs. Hugh Leader and T. Percival Chubb have been elected directors of the company.

SOUTHAMPTON AND DISTRICT BUILDERS' AND DECORATORS' ASSOCIATION.—The annual dinner of this Association was held at the South Western Hotel recently. About 100 members and guests were present, including the Mayor (Mr. Henry Cawte), Sheriff R. Andrews, J.P., Alderman J. H. Hollis, Mr. Harold Marshall (President), Mr. W. H. Dyer (Vice-President), Major G. Brinton and Mr. Harry Stevens (Past-Presidents). The loyal toasts having been submitted from the chair, and duly honoured, the toast of "The Mayor, Corporation, and Borough Officials" was proposed by Mr. T. Rashley, the Mayor and the Sheriff responding.—Mr. H. Stevens, in proposing "The National and Kindred Associations," said it was to be hoped that members of the trade would work together, not merely from a personal point of view, but from a general desire to benefit trade conditions. Mr. G. Martin (President of the Bournemouth Association), in responding, mentioned that their Association had not been affiliated with the National Association, possibly because there was some feeling that that Association might call upon Bournemouth builders to do something which they might consider detrimental to their interests. He personally had always been in favour of affiliation, and if during his year of office he possibly could he would bring about this affiliation. Mr. G. R. Chamberlain (President, Portsmouth Association) and Mr. F. B. Roscoe (Portsmouth Association) also made brief responses.—Mr. W. F. Wallis (President, Southern Counties Federation) in proposing "The Southampton Master Builders' and Decorators' Association," emphasised the necessity of organisation amongst master builders in order that they might be enabled to meet employees on level terms. The revival of labour as seen in the recent Parliamentary elections, and the decision of the Association at their last annual meeting to appoint Conciliation Boards in conjunction with the local workmen's unions, in order to consider points in dispute, and wherever possible to avoid strikes, were other points touched on. Mr. Harold Marshall (the President), in responding, mentioned that of late the number of apprentices had fallen off a great deal. Strenuous efforts should be made to revive apprenticeship, and to offer every inducement to young fellows contemplating entering the trade. Mr. A. T. Doggrell (hon. Secretary) also responded.—The Mayor proposed "The Architectural Profession and other Guests," and traced an abridged history of the profession. The toast was responded to by Mr. A. F. Gutteridge and Mr. J. Blizard, on behalf of the former, and Alderman J. Hollis, on behalf of the latter.

INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.—A second International Congress on School Hygiene is announced to be held in London from August 5 to 10, under the management of the Royal Sanitary Institute. Sir Lauder Brunton will preside; and the Honorary General Secretaries are Dr. James Kerr, Medical Officer in the Education Department of the London County Council, and Mr. E. White Wallis, Director of the Sanitary Institute. The circular announcing the Congress states that in order to prepare for the London Congress the first step to be taken is the formation of a Local Committee for each particular town or district, which Committee should approach the authorities of the Education Department and the Treasury, the leaders of Educational movements in town or country, the Presidents or Chairmen of Educational Committees, teachers of experience, philanthropists who are interested in Educational movements, and medical men who have experience in treating children; engineers, and architects, and any other citizens whose assistance would be desirable. This Committee when formed should report forthwith to the London Bureau the name and address of the Chairman and Secretaries. These Local Committees will be co-ordinated from London under National Committees. Their aim should be to do all in their power to promote the success of the Congress by diffusing information, by letters, circulars, or announcements in special and technical journals, and by press notices. They should also endeavour to obtain the co-operation and support of Governments, Municipal or Educational Authorities, and Committees of Institutes and Societies, and induce them to participate by delegating representatives to the Congress or by sending representative exhibits of local interest or manufacture, or scientific appliances or inventions to the School Hygiene Exhibition which is to be arranged. Contributions are invited either from the representatives of Governments, Authorities, Societies, or Academies, or from individual members to the scientific work and proceedings of the Congress by the reading of papers, contribution of reports, or by discussion of various subjects to be brought forward in the sectional meetings. It is proposed that besides sectional meetings and lectures there shall be held at least three general discussions. The subjects will be announced early, so that there will be time for collective investigation and observation. The English Committee invite suggestions, as soon as possible, as to the subjects under this heading. The first programme of the Congress, with a list of the various National Committees, the subjects of reference for general discussion, and details as to arrangements of the Congress will be issued shortly. All communications relating to the School Hgyiene Exhibition, which will be arranged in conjunction with the Royal Sanitary Institute, should be directed to the Secretary of that Institute, Margaret-street, London, W.

BIRKENHEAD BUILDING TRADES EMPLOYERS' FEDERATION.—The members of the Birkenhead and Wirral Building Trades Employers' Association held their seventh annual dinner recently at the Woodside Hotel. Mr. P. Rothwell, President of the Association, presided. The loyal toast was honoured, and "The Liverpool Master Builders' Association" was proposed by Councillor G. Snape, who said the Birkenhead Association was merely an adjunct of the Liverpool Association, and they had to go to Liverpool for counsel in matters appertaining to their trade. He coupled with the toast the name of Mr. W. Bullen, who was a most courteous President. The toast was drunk with musical honours, and Mr. Bullen, in responding, said he did not think he would be egotistical if he said that the Liverpool Master Builders' Association had justified its existence, had been a forerunner of many such associations, and was doing a great deal to help other associations. Trade was at present entering into what he might call a new sphere. They as master builders and members of Master Builders' Associations must be fully alive to their positions, or they would find the Labour representatives looking after their own interests only. Mr. James Merritt proposed the health of "Our Guests," Mr. B. B. Moss, secretary of the Liverpool Association, responding. In submitting the toast of "The Birkenhead and Wirral Building Trades Employers' Association," Mr. W. Bullen said times were changing very rapidly, and they could not expect that every movement they made would please everyone. One of the old stock sayings was, "Well, they did so and so fifty years ago," but it was no good talking like that now. Fifty yeas ago building trade associations were not formed. They might expect great changes, not in fifty years nor fifty months, but in the next fifty weeks. Although the associations were good, they were not by any means perfect. What had they to do? They had their associations and federations, and it might be asked: What else could they do? He noticed that their membership in Birkenhead was about 80. He did not expect to see such a fine gathering, but he wanted to know if that represented all the building trade employers in Birkenhead. Well, there was their work. He wanted them to try and persuade those builders who were not in the Association to join not only for their own benefit, but for the benefit of the people at large. He thought that the builders of Liverpool and Birkenhead were too far separated, not by distance, and that they ought to combine more. Mr. P. Rothwell, in responding, said they had been thinking of combination for years, and they would try and bring it about. It would be better if the wages, hours, etc., were the same in Birkenhead as in Liverpool. The toast of the "Town and Trade of Birkenhead" was proposed by Mr. J. Sansom. Unfortunately, he said, there were a lot of legitimate genuine unemployed, but there were always a host of loafers to swell the ranks. From a report of the Labour Bureau that had been sent him he found that with regard to his particular trade—the timber merchants—there was only one man wanting employment, and he was a sawyer. If they took that as a criterion, it was a fair inference to say that the building trades generally in the town could not be in a bad state. That was indeed a matter for great congratulation, but there was one trade in Birkenhead that was not doing so well, and that was the shipbuilding. Mr. Shilton briefly replied.

ROMANESQUE ORNAMENT AND ITS ORIGINS.—Under this title Mr. F. Hamilton Jackson, R.B.A., gave a lecture before the Society of Designers on Tuesday evening, the 27th ult., in the Suffolk-street Galleries, when he sought, with the aid of some 150 lantern slides, to bring more clearly before his audience the early origins and influences at work in Southern Europe during the Early Christian and Mediæval times as regards the development of ornament. The lantern views were perfect of their kind, and were almost exclusively of or from more or less well known churches and religious houses in Italy and the South of France. In his rapid review of the slides the lecturer directed the attention of his audience rather to the purely Byzantine influence at work than to the differences between that and the other more local sources and tendencies. We cannot do justice here—either critically or otherwise—to the matter contained in Mr. Hamilton Jackson's lecture, but where architectural objects are concerned, while regarding the value of historical research at its full worth, a proper and logical discrimination ought also to obtain, and admiration, in some cases, proportionately qualified. Notably in some of the doorways and other details shown by the lecturer we failed to find this attribute, while coarse sculptured figures from Lombardian façades were termed "caryatides."

ST. WILLIAM'S COLLEGE, YORK.—St. William's College, the ancient building at the east end of York Minster, has been purchased by the Convocation and House of Laymen of the Northern Province. It is much dilapidated, but the building has passed into the hands of Convocation on the express condition that it is to be thoroughly restored. It is intended to convert it into a church house, providing accommodation for the two Houses of Convocation and for the House of

Laymen, and available for other church purposes. St. William's College was founded in 1453 as a college for priests holding chantries in the Metropolitical Church. In 1642 Charles I. set up his printing presses here. In the purchase and the complete restoration that is contemplated a sum of not less than 10,000*l.* will be required. Contributions will be gratefully received and duly acknowledged by the Restoration Committee. Cheques or postal orders should be made payable to the Treasurer of St. William's College Fund, Beckett's Bank, York, or to the Secretary, Rev. C. N. Gray, Helmsley, R.S.O. Visitors can be admitted at the chief entrance to inspect the buildings by ticket (price 6d.), to be obtained at the first door of the College next the Minster.

Legal.

AN ARCHITECT AND HIS EMPLOYER:

SEQUEL TO A CONTRACT.

IN the King's Bench Division, on the 6th inst., Mr. Justice Grantham delivered judgment in the case of Shallcross *v.* Bergyl, an action tried by his lordship at the Liverpool Assizes last week.

In this case the plaintiff, Mr. Thos. M. Shallcross, an architect, of Liverpool, sued the defendant, Mr. Moritz Bergyl, for fees, and had obtained judgment. The defendant set up a counterclaim for damages for the alleged breach of duty of the plaintiff, as architect, in connexion with the renovation of the Carlton Hall and Restaurant at Liverpool, of which the defendant was proprietor. The facts sufficiently appear from the judgment.

His lordship, in giving judgment, said the case was important, even so far as the amount was concerned, but was much more important on account of the principles involved in the dispute and the claim made by the architect to act in the interests of the builder unknown to the building owner at the same time that he was acting as the architect for the building owner. In his judgment it was impossible to act honestly where the interests were antagonistic, and in that case, were it not that the plaintiff, as an architect, claimed the right to do so, and contended with great earnestness that such conduct was legitimate and was adopted by other architects, he should have said that the plaintiff had been guilty of great dishonesty, but he had no reason to doubt his word when he stated that he believed all through that he was justified in so acting. His lordship could not believe that many other architects also acted in a similar capacity. He was bound to come to the conclusion that gross impropriety was committed by those architects who acted as the plaintiff had acted. It was only necessary to state the facts of the case to show the hopeless position in which the plaintiff had placed himself. Defendant was the owner of a large restaurant and public hall, and wished to improve it and so structurally alter it as to bring it up to modern requirements. The work might be described as divided into two heads—first, the preparation of plans to lay before the magistrates, and the consequent attendance on the magistrates for the purpose of getting their consent to the alterations; secondly, the preparation of plans for, and the superintendence of, the carrying out of the work. This work, though in one sense distinct, was in reality almost identical and overlapped, because he found that the plans prepared for the magistrates were practically the plans ultimately used for the carrying out of the work, and were mostly the plans charged for by the plaintiff in his charges for carrying out the alterations by the builder, and the whole of the negotiations for the contract, subsequently signed, were being carried on while the proceedings before the magistrates were taking place. Defendant admitted that the plaintiff was his architect during the whole of this period, and that he was liable to pay him for his services as such. Then what was the plaintiff's contention? It was that, during the earlier portion of the time, he had a right to act, and was acting, in the interests of the builders. Messrs. Norman & Stacey were trying to get the job to do the work, or, rather, get a contract to do it, as they were incapable of doing it themselves, and plaintiff alleged that in the interests of this firm he was entitled to get a contractor who would do the work for a specific sum, and then, having fixed that sum as the cost of the work, to add 20 per cent. to that sum as a commission or bonus to these nominal builders, who were a London firm of furniture dealers, who never intended to do a stroke of the work themselves, and to represent to the defendant that sum as the fair price at which that work could be done. In other words, knowing that the real contractor had to do the work for 1,625*l.*, he was entitled to tell his other employer, the building owner, that 1,950*l.* was the price, and that it could not be done for less, and not only that, but was entitled to do everything for the interests of this nominal builder as against the interests of the building owner until the period of the latter finally signing the contract with the nominal builder, who simultaneously, through the intervention of the plaintiff, got the contractor to sign a contract to do the work at 20 per cent. less. That was the case. His lordship said he might leave it there, but to do ample justice to the plaintiff he would shortly state the justification that he put forward. He said he was brought into the matter by the nominal builders, and was employed by them to suggest a scheme for the alteration of the defendant's premises, and in that way was introduced to them. Quite true these nominal contractors were introduced to defendant by a person named Capper, who had, or said he had, an idea of taking the place when altered. They now knew that he expected to get a commission of 5 or 10 per cent. out of the nominal builders for the introduction, and they heard no more of Mr. Capper after the first interview. At the first interview with the defendant in London nothing was done, but at a second meeting a few days afterwards, when the plaintiff was present, the defendant agreed to employ the plaintiff as his architect to prepare plans and manage the matter for him before the magistrates, and to get their consent to the proposed alterations, the defendant stating that, if the magistrates passed the plans and the work could be done within his limit of price, he should certainly carry it on. Plaintiff at once set himself to work to prepare the plans and attend the magistrates and the municipal authorities, etc., because the plaintiff said that he continued to act in the interest of Norman & Stacey, the nominal builders, and was justified in getting the more favourable terms he could for them and the highest price he could out of the defendant for the work, though at the same time employed to superintend the work for the defendant. In other words, for nine months, according to his suggestion, he was justified in acting for two masters whose interests were opposed to each other, and for the last six months, when acting only for the defendant, he was justified in withholding from the defendant all the knowledge that he possessed as to the best way of carrying on the work in the interest of the defendant, because, by so doing, he would be betraying the interest of the other employer who had previously, as it were, a joint employment of him with the defendant. It was an impossible position. There could be no doubt that from start to finish the plaintiff looked to the interest of Messrs. Norman & Stacey, who had become bankrupt long before the work was finished, and never once, that he could see, when there was any conflicting interest, looked to the interest of the defendant, though the special work alleged to be done by the plaintiff for Messrs. Norman & Stacey was only of the alleged value of 31*l.*, as against 300*l.* charged to the defendant. His lordship found, as a fact, that upon the first appointment of plaintiff as architect for defendant and acceptance of that appointment by him, the defendant looked on the plaintiff as his architect, and that the plaintiff neglected the defendant's interest and committed a gross breach of duty in acting at the same time in the interests of the nominal builders. He would find, if necessary, that he was guilty of negligence in the way the contract was prepared and the orders for extra work given. But he found in reality that it was not by ordinary negligence that the work was so done, but because it was to the interest of the builders to so do it. Not only was the defendant prejudiced by having to pay 1,950*l.* as the contract sum for the work, instead of 1,625*l.*, but also extras to the amount of about 2,500*l.* It had been said that even if the defendant had known Norman & Stacey were getting the work done by a sub-contractor for 1,625*l.*, instead of 1,950*l.*, *non constat*, that the defendant could not have it done for that sum. His lordship believed he could have done so, because the plaintiff's own account of it was that his instructions to the sub-contractor, Marshall, were to put his tender at such a price as would enable Norman & Stacey to obtain the contract against London contractors when they had added 20 per cent. to his price. But why limit it to London contractors? The property was in Liverpool, the architect was there, and the defendant had his agents there, who superintended the property. Defendant did not ask for a London contractor, and it was fair to assume that contractors of the character of Waring & Gillow would put a higher class of work into the job than a local contractor who would take it at 20 per cent. less. Marshall was not estimating, therefore, as against any local contractor, but was taking advantage of the known higher prices of London firms. He thought tha defendant could have claimed the return of almost the whole 20 per cent., but, as defendant's advisers generously said they would accept a basis of 10 per cent., he found that the defendant was damaged to the extent of 400*l.* by the plaintiff's conduct. As to the extra amount charged for the drawings—as the requirements—unjust and foolish requirements as they were—by the Liverpool Municipal Surveyor undoubtedly did necessitate a great deal of work that had not been anticipated, he thought it would be ungenerous, not to say unjust, to make the plaintiff refund the money paid to the builder for the work unexpectedly required by the authorities, though, strictly speaking, the contract might be said to make the builder liable for it. It was negligently drawn to leave the matter in uncertainty. He did not give any damages to the defendant on that head. His judgment was for the defendant on the counterclaim for 400*l.* and costs.

Leave to appeal was refused.

SEQUEL TO THE CHARING CROSS STATION ACCIDENT.

THE cases of Scott and others *v.* Lennox and Lennox *v.* Curzon came before Mr. Justice Lawrance in the King's Bench Division on the 3rd inst.

In the first case Mr. Lush, K.C., for the plaintiff, said that the action, which was for rent, arose out of the accident which occurred at Charing Cross Station on December 5 last when the Avenue Theatre was practically destroyed. The plaintiffs were the lessees of the freeholder and the defendant was the assignee of the lease which had been granted to the Theatrical Syndicate, Ltd. Mr. Curzon was a sub-lessee, and he gave a further sub-lease to Mr. Maude. The question in the case was whether defendant was excused from paying rent by one of the covenants in the lease. The rent of the theatre was 750*l.* a quarter, payable in advance. The covenant in question was as follows:—"If and whenever during the said term the said theatre and premises shall be closed by order of any superior authority, or be destroyed by fire or so damaged by fire that the same cannot be continued to be used as a theatre, the rent shall as from the date of such closure or from the day following such fire, if any, be suspended." The only question in the case was whether the theatre had been closed by an order of any superior authority. At the time of the accident it was closed because it was being repaired. The accident caused the destruction of the theatre. As it could not be said that the theatre had been closed by an order of any superior authority, he contended there was no defence to the action. Mr. Roskill, for the defendant, said the lease provided that the cost of structural alterations ordered by the County Council should be borne by the lessors. The County Council had required structural alterations after the accident, and the true construction of the covenant was that, while the theatre could not be opened by reason of an order requiring structural alterations, the rent should be suspended.

In the present case there was not only an order of the magistrate, Mr. Fenwick, on December 8, but a letter from the Lord Chamberlain later, saying that the theatre must not be opened without it was passed as safe by the County Council. The theatre was badly damaged, and in consequence of the injury had been closed by superior authority. As the defendant was not liable as between himself and the plaintiffs to do any of the structural work ordered by the magistrate, and as the existence of the magistrate's order was one of the reasons the theatre could not be opened, the proviso as to the suspension of the rent was operative.

In the result, his lordship, in giving judgment, said it was one of the cases provided for in the lease. The theatre was still a theatre after the accident, but as it was then impossible to carry on the business of a theatre there, that was the real reason of the closing. He accordingly entered judgment for the plaintiffs for 750*l.* and costs.

In the second action of Lennox *v.* Curzon a similar question arose on the same covenant. Mr. Lennox, the defendant in the other case, being the plaintiff in this, his claim being against Mr. Curzon, his sub-lessee, and in the result Mr. Lennox recovered judgment for 1,210*l.* and costs.

A stay of execution was granted in both cases on the usual terms.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

2,038 of 1905.—C. J. S. LAMBERT: *A Process and Apparatus for Drying Air.*

THIS relates to a process for the dessication of air for all applications to ventilation and to the dessication of substances, said process consisting in effecting the operation in a systematic refrigerating apparatus where the condensation of the greater part of the water vapour is obtained by bringing the air into contact with cold liquid trickling over either plain or corrugated surfaces which are not cooled below the point of congealation of water, the operation being completed by physical and not by chemical means by causing the air to pass into a second refrigerator, in which it comes into contact with any solution capable of forming with water a uncongealable mixture, and having a vapour tension corresponding to a lower percentage of

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

water than the final percentage which it is desired to attain in the air.

2,045 of 1905.—R. J. BROOKE: *Hot-Water Heating Apparatus.*

This relates to a hot-water heating apparatus, wherein, at starting, the liquid of the circuit put into motion around the circuit is small in quantity in comparison with the total delivery of the circulator, and offers comparatively little resistance, and the quantity of the liquid so moved is gradually increased until normal circulation is established.

2,383 of 1905.—R. WANDERMAN: *Dovetail Cutters.*

This relates to an appliance for cutting dovetails, consisting of a slide, a chisel composed of several parts attached to the slide, some of the parts being movable to and from each other, the ends of the chisel being splayed out and rebated or overlapped, and a mechanism for moving the parts to widen and narrow the chisel as it descends and ascends.

8,169 of 1905.—J. G. HARRISON: *Ventilators for Windows.*

This relates to ventilators for windows constructed from perforated sheet metal, two of which comprise a set of ventilators for one window. The first ventilator is similar to a rectangular box about half an inch thick, and of a suitable width, it is fitted closely between the top and sides of the outer window frame, and is secured by its projecting ends and top side to the back of the aforesaid window frame, and immediately in front of the sliding window or sash, so as to allow the upper window sash, which presses slightly against the back of the ventilator when in its position, to slide up and down at will. The second or middle ventilator is about 1¼ in. wide, and is bent double to a convenient shape, and secured to the bottom part of the upper window sash at a short distance from the lower window sash, so that when the upper window sash is pulled down the perforated metal strip may almost touch the lower part in its downward path. When required, a V-shaped piece is cut out of the strip so as to allow the strip to fit closely up to the pane and round outside part of centre frame. Screw holes are provided in various positions on the perforated metallic strips for the purpose of fixing the ventilators to the woodwork by means of screws.

8,965 of 1905.—A. TOMKINS: *Traps for the Wastepipes of Sinks, Baths, and the like.*

This relates to the adjustment and control of the direction of the outlet piece or leg of traps to sinks, baths, and the like by means of a joint at or near the weir of the trap, the seating of such joint to lie in a plane normal to the curved axes of the adjacent parts, and inclined at an angle of 45 deg. or thereabouts to the horizontal plane when the trap is in its usual position. When in use the parts are bolted, screwed, or otherwise fastened together as desired.

9,784 of 1905.—S. S. HELLYER: *Pans of Water Closets, Bed Pans, Sinks, and the like.*

This relates to pans of water closets, bed pans, sinks, and the like, and consists in applying strips of wood, vulcanite, or other protective material, or material which is a bad conductor of heat, to the rim of the same, and in providing the said strips and the said pans, sinks, or the like with parts which will engage together so that the strips are secured in place without the use of bolts or analogous fastenings, and whether cement be interposed or not.

10,012 of 1905.—E. F. GOODALL *Method of Securing Slates, Tiles, and the like.*

This relates to the method of securing slates, tiles, and the like by nails or spikes, and of rendering the same waterproof, and is characterised by the use of nails or spikes having on the undersides of their heads recesses or sinkings, which are filled with putty or other plastic material adapted, on the nails or spikes being driven home, to fill up and seal the holes in the slates and the like.

10,354 of 1905.—J. HALL: *Air Filtration and Means Therefor.*

This relates to an apparatus for filtering air for supply to brewers and other factories, and consists of a suction fan inlet chamber, the walls of which are composed of removable frames containing filtering medium and arranged in sets so as to prevent a large filtering surface, whereby the air is drawn through the filtering medium evenly over the entire surface thereof.

11,255 of 1905.—J. H. CARTLAND and J. LILLY: *Apparatus for Opening and Closing Swinging Windows, Ventilators, Fanlights, or Similarly Swinging Bodies.*

This relates to an apparatus for opening and closing swinging windows, ventilators, fanlights, or similarly swinging bodies, and consists in the combination of a frame having eccentric pivotal connexions, and an attachment bracket, said frame carrying a screw and a rotatable pulley nut, which screw is pivotally connected to bracket, and in means for rotating the nut.

21,733 of 1905.—S. GOLLIEK: *Building Blocks.*

This relates to a building block formed from plastic material, and provided with channels in its ends, and consists of metallic binding members embedded near each longitudinal edge of the block, and provided with a hook on one end and an eye on the opposite end, and a binding member disposed centrally transversely of the block, and provided with a hook on each end in engagement with the longitudinal binding members.

23,048 of 1905.—J. DUGDALE: *Fastener for Windows and the like.*

This relates to a window fastener, and consists of a bracket with a spring pin or catch secured to each window sash, combined with a notched bar secured to the window-frame, and so arranged that both sashes can be locked and secured in different positions independently of one another.

24,244 of 1905.—C. BONAFEDE: *Manufacture of Mastic for Flushing the Joints in Flooring and other Similar Purposes.*

This relates to the manufacture of a mastic for flushing the joints in flooring, according to which twenty-five to fifteen parts of sawdust and finely ground cork are mixed with seventy-five to eighty-five parts of a cold starch prepared from pure rye flour and boiling water, for obtaining a mastic of greater elasticity.

3,699 of 1905.—W. TIPPER: *Grabs and Means for Operating the Same.*

This relates to a grab device for raising grain and other cargoes, excavating or dredging and other purposes, wherein the fall or lifting-chain for the jaws of the grab is provided at one point with an enlarged link, and in which the suspending rods by which the grab jaws are suspended when open preparatory to being lowered are provided with a crown piece or catch device through which the said fall passes, said catch device being adapted to engage the enlarged link on the fall when the jaws of the grab are fully open, and so permit the chain to lower the grab with the jaws in the open positions, but release said link when it is required to close the jaws.

4,335 of 1905.—D. E. L. DAVIES: *Means for Indicating and Recording Variations in Level or Depth of Water or Other Liquids, as in Reservoirs, Sewers, and Mines.*

This relates to means for indicating and recording variations in level or depth of water or other liquids, as in reservoirs, sewers, and mines, and consists in the use of a revolving drum upon which the fluctuations of the flow of water shall be indicated by means of a pointer to which a horizontal motion is imparted from a revolving shaft by means of a screw with nut working thereon.

10,579 of 1905.—C. AMES: *Surface Water Gully.*

This relates to a double trapped surface water gully having the one trap formed by a hopper, the lower end of which depends below the surface of the water in the gully, and the other trap formed by a diaphragm in a chamber within the gully, the said chamber being situated about midway between the bottom and top of the gully, through which chamber the water has to pass on its way from the gully to the sewer, the said chamber being divided into two compartments by the said diaphragm, so that one compartment is open to the sewer and the other compartment is open to the interior of the gully.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

February 21.—By KEMSLEYS' (at Romford).
Romford (Essex).—41 and 43, Junction-rd., f... £900

February 22.—By MADDISON, MILES, & CO. (at Yarmouth).
Yarmouth.—19 and 21, North Denes-rd., u.t. 980¼ yrs., g.r. 2l. 7s., y.r. 39l. 19s. 680

By MADDISON, MILES, & CO. (at Bungay).
Bungay (Suffolk). — Earsham-st., "Vassily House," f., p. 225

February 26.—By FRANCIS DODD & CO.
Stoke Newington.—347, Amhurst-rd., u.t. 62 yrs., g.r. 8l. 10s., e.r. 48l. 435
94, Wiesbaden-rd., u.t. 87 yrs., g.r. 6l. 10s., e.r. 36l. 315

By ELLIOTT, SON, & BOYTON.
Tottenham Court-rd.—Nos. 248, 249, and 250 (s.), area 4,180 ft., u.t. 50 yrs., g.r. 185l., y.r. 700l. 9,000

By CECIL HOBDAY.
Putney.—63, Rusholme-rd., f., e.r. 75l. 1,100

By FRED VARLEY & SON.
Holloway.—34, Thane-villas, u.t. 45 yrs., g.r. 7l. 7s., e.r. 36l. 225
Finsbury Park.—21, Coleridge-rd., u.t. 53 yrs., g.r. 10l. 10s., e.r. 55l. 390
48 and 50, Finsbury Park-rd., u.t. 61 yrs., g.r. 18l. 18s., e.r. 110l. 885

By G. A. WILKINSON & SON.
Southwark.—195, 195A, 197, 199, 201, 201A, Union-st. (houses, s., and warehouse), area 3,927 ft., f., y.r. 286l. 2,100
207 and 209, Union-st. (s. and workshops), area 1,986 ft., f., y.r. 73l. 16s. 900

February 27.—By WALTER HALL.
Mortlake.—66, Shrewsbury-la. (s.); 1, 2, and 3, Hampton-sq., and the "Wheatsheaf" p.h. adjoining, u.t. 43¼ yrs., g.r. 15l., y.r. 124l. 6s. 710
Willesden.—9, Preston-gdns., u.t. 89¼ yrs., g.r. 6l., e.r. 38l. 285

By MAY & PHILPOT.
Clapham.—14, Santley-st., u.t. 69 yrs., g.r. 6l. 10s., e.r. 40l. £320
Streatham.—56, Buckleigh-rd., u.t. 73½ yrs., g.r. 6l. 10s., e.r. 40l. 300
Herne Hill.—30, Dulwich-rd., u.t. 62 yrs., g.r. 10l., e.r. 55l. 375

By FREDERICK WARMAN.
Islington.—16, Theberton-st., u.t. 12½ yrs., g.r. 8l., e.r. 45l. 150
Highbury.—44, 46, and 50, Gillespie-rd., u.t. 60 yrs., g.r. 18l., y.r. 92l. 750
Palmer's Green. — Fox-la., "Eversley," u.t. 98 yrs., g.r. 9l., y.r. 48l. 500
Norwood.—Sangley-rd., f.g.r. 24l. 10s., reversion in 95½ yrs. 520

By STEPHEN JACKSON (at Masons' Hall Tavern).
Plumstead, Kent.—Park-rd., the "Rose Inn," u.t. 9½ yrs., y.r. 120l., with goodwill 3,750

By SEDGWICK, SON, & WEALL (at Watford).
Bushey, Herts.—91, 93, and 95, Villiers-rd., f., w.r. 46l. 16s. 575

By TOMKINS & CHADWICK (at Abergavenny).
Llantillio Pertholey, Monmouth.—Four enclosures of land, 12 a. 2 r. 38 p., f. (in lots). 670

February 28.—By E. H. HENRY.
Kennington.—6 and 7, Renfrew-rd., u.t. 21 yrs., g.r. 12l., y.r. 76l. 530
Clapham.—19, Lambourn-rd., u.t. 39 yrs., g.r. 6l. 6s., p. 345

By PARKHOUSE & PEARSON.
Notting Hill.—33 and 35, Portland-rd., u.t. 55 yrs., g.r. 14l., y.r. 70l. 630
Kentish Town.—79, Willes-rd., u.t. 46½ yrs., g.r. 6l., y.r. 30l. 275
Edgware-rd., 1, Cuthbert-st., u.t. 32½ yrs., g.r. 7l. 7s., y.r. 40l. 390
Paddington.—9, Howell-st., u.t. 32½ yrs., g.r. 7l. 7s., e.r. 38l. 230
Marylebone.—1 and 2, Hatton-pl., u.t. 15½ yrs., g.r. 7s., w.r. 53l. 6s. 155
St. John's Wood.—13, Blenheim-ter. (s.), u.t. 43½ yrs., g.r. 7l. 10s., y.r. 55l. 430

By DOUGLAS YOUNG & CO.
City.—12, Queen-st. (Offices), u.t. 28 yrs., g.r. 220l., y.r. 650l. 4,400

By J. M. LEEDER & SON (at Swansea).
Mumbles, Glamorgan.—12, Castleton, u.t. 63½ yrs., g.r. 3l. 12s. 6d., y.r. 20l. 350
Sketty, Glamorgan.—"Bryntirion" and "Aelwy-Bryn," also two plots of land, f., p. 1,350

March 1.—By BISLEY & SONS.
Bermondsey.—6, 7, and 8, Prter-rd., u.t. 30½ yrs., g.r. 15l., w.r. 109l. 4s. 645
39, Drummond-rd., u.t. 28 yrs., g.r. 3l., w.r. 44l. 4s. 255
Old Kent Road.—1 to 14 and 16, Aulay-st., u.t. 33½ yrs., g.r. 75l., w.r. 507l. (in lots) 3,255

By CURTIS & HENSON.
Marylebone.—14 and 15, Weymouth-mews, u.t. 30½ yrs., g.r. 30l., p. 630

By NEWBON, EDWARDS, & SHEPHARD.
Kilburn.—106, Granville-rd. (s.), u.t. 69½ yrs., g.r. 2l. 12s. 6d., y.r. 55l. 760
Maida Vale.—55 to 63 (odd), Elgin-av. (s.), u.t. 57½ yrs., g.r. 50l., y.r. 315l. 2,890
1, Barnsdale-rd., u.t. 57½ yrs., g.r. 8l. 8s., w.r. 80l. 12s. 470
Paddington.—7, Chichester-rd., u.t. 42½ yrs., g.r. 8l., y.r. 60l. 440
31, Ranelagh-rd. (s.), u.t. 53½ yrs., g.r. 5l. 6s. 6d., y.r. 42l. 400
Old Ford.—115, 121 to 127 (odd), Roman-rd. (s.), f., y.r. 202l. 3,425
1, Driffield-rd., f., w.r. 39l. 420
Homerton.—12, Sidney-rd., f., e.r. 40l. 580
Barnsbury.—128, Hemingford-rd., u.t. 36½ yrs., g.r. 2l., y.r. 52l. 400
Clapton.—117, 119, and 139, Rushmore-rd., u.t. 69½ yrs., g.r. 15l., w.r. 122l. 2s. 795

By STIMSON & SONS.
Kilburn.—95, Priory Park-rd., u.t. 81½ yrs., g.r. 6l. 10s., y.r. 36l. 370
Islington.—12, Prospect-pl., f., y.r. 26l. 330
New Kent-road.—3 to 21 (odd), Gurney-st., improved rental of 91l. for 58 yrs. with reversion 1,150
Camberwell.—76, 78, 80, 84, and 86, Acorn-st., u.t. 27½ yrs., g.r. 6l. 4s., w.r. 111l. 16s. 320
57 and 59, Cork-st., u.t. 28 yrs., g.r. 3l., w.r. 53l. 6s. 230
Walworth.—34 and 36, Villa-st., u.t. 45 yrs., g.r. 10l., w.r. 88l. 8s. 540
Peckham.—52 and 54, Camden-gr. North, u.t. 56 yrs., g.r. 6l. 6s., w.r. 66l. 6s. 425
42, Crewys-rd., u.t. 71 yrs., g.r. 5l., w.r. 30l. 325
Dulwich.—1, Keston-rd., u.t. 63 yrs., g.r. 7l., y.r. 30l. 300
Streatham.—26, Hitherfield-rd., u.t. 86 yrs., g.r. 7l., y.r. 38l. 335
Tooting. — Lucien-rd., two freehold building plots 160
Penge.—10, Queen Adelaide-rd., u.t. 32 yrs., g.r. 6l., y.r. 40l. 270

By OWEN WALLIS & CO.
Stoke Newington.—28, Grayling-rd., u.t. 74½ yrs., g.r. 7l., y.r. 40l. 400

By WESTON & SONS.
Battersea.—Knowsley-rd., f.g. rents 46l., reversion in 63½ yrs. 1,060
Clapham.—Lyham-rd., f.g.r. 16l., reversion in 77 yrs. 385

March 2.—By BUCKLAND & SONS.
Brixton.—169, 171, and 173, Railton-rd., u.t. 62½ yrs., g.r. 14l., w.r. 120l. 18s. 805
Stockwell.—27, St. Martin's-rd., u.t. 70½ yrs., g.r. 9l., e.r. 45l. 350

By VINCENT S. LEIGH.
Hackney.—3 to 13, 21 to 27 (odd), Bridge-st., u.t. 70 yrs., g.r. 50l., w.r. 258l. 14s. 1,325
Dalston.—112 and 114, Queen's-rd., u.t. 39½ yrs., g.r. 14l., y.r. 78l. 620
2, Shrubland-gr., u.t. 13 yrs., g.r. 5l., y.r. 30l. 125
Clapton.—92, Lower Clapton-rd. (s.), u.t. 78½ yrs., g.r. 15l., y.r. 40l. 450
Mile End.—27, Skidmore-st., f., w.r. 36l. 8s. 365

By WREFORD, DIXON, & CO.
City.—11, Trinity-sq. (offices), f., y.r. 100l. 2,310
Tower Hill, etc., a freehold rent charge of 12l. 345

By P. J. DIXON & SON.

Bethnal Green.—31, Sidney-st., f., w.r. 26*l.* .. £310
49 to 55 (odd), Middleton-st., u.t. 23 yrs., g.r. 12*l.*, w.r. 132*l.* 12*s.* 605
Walthamstow.—216, Boundary-rd. (s.), f., w.r. 33*l.* 16*s.* 350

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXIX. (July to December, 1905) was given as a supplement with the issue of January 13th.

CLOTH CASES for Binding the Numbers are now ready, price 2*s.* 6*d.* each; also

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THE EIGHTY-NINTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

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CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

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Each additional line ..... 1*s.* 0*d.*

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Four lines (about thirty words) or under ..... 2*s.* 6*d.*
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PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. / By post (carefully packed) 1*s.*

MEETINGS.

FRIDAY, MARCH 9.

Architectural Association.—Mr. Gilbert H. Lovegrove on "The A.A. Camera and Cycling Club Excursions," illustrated by lantern views. 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. R. Freeman on "The Design of a Two-Hinged Spandrel-Braced Steel Arch." 8 p.m.

Architects' Benevolent Society.—Annual general meeting of the subscribers and donors, to be held in the rooms of the Royal Institute of British Architects. The President, Mr. John Belcher, A.R.A., will take the chair at 5 o'clock.

Glasgow Architectural Craftsmen's Society.—Mr. J. L. Mc.Kinnon on "Masonry in Lighthouse Architecture." 8 p.m.

SATURDAY, MARCH 10.

Architectural Association.—Spring visit to the Royal London Friendly Society's Building and Tollard Royal Hotel, Southampton-row, W.C. 2 p.m.

Junior Institution of Engineers.—Conversazione. Mr. C. Alfred Smith, B.Sc., on "The Evolution of the Man-of-War," illustrated by lantern slides. 8 p.m.

Royal Institution.—Professor J. J. Thomson, M.A., on "The Corpuscular Theory of Matter," II. 3 p.m.

Edinburgh Architectural Association.—Visits to Edinburgh Castle and addition to City Chambers.

MONDAY, MARCH 12.

Surveyors' Institution.—Mr. W. Woodward on "The Means of Locomotion and Transport in London"—a paper on the Report of the Royal Commission on London Traffic. 8 p.m.

Society of Arts (Cantor Lecture).—Professor Vivian B. Lewes on "Fire, Fire Risks, and Fire Extinction," I. 8 p.m.

TUESDAY, MARCH 13.

Institute of Sanitary Engineers (Students' Lecture).—Professor Adams on "Supervision of Works in Progress." 7 p.m.

Institution of Civil Engineers.—Mr. J. J. Webster on "The Widnes and Runcorn Transporter-Bridge." 8 p.m.

WEDNESDAY, MARCH 14.

Association of Engineers-in-Charge (Bride-lane, Fleet-street).—Mr. G. Bibby on "Ventilation of Public Buildings." 8 p.m.

Edinburgh Architectural Association.—Mr. J. G. Gillespie on "A Study of the English Renaissance," illustrated by lantern slides. 8 p.m.

Quantity Surveyors' Association.—Annual Dinner, Criterion Restaurant. 6.30 p.m.

Institution of Civil Engineers.—Students' visit to Charing Cross railway station, to inspect the work on the roof. (Assemble inside the station, under the clock.) 2.30 p.m.

THURSDAY, MARCH 15.

The Builders' Exchange, Birmingham.—Mr. Peter B. Ball on "Canadian Cities." 6 p.m.

Carpenters' Hall, London Wall (Free Lectures on Matters Connected with Building).—Mr. E. Guy Dawber on "The Yeoman's House in England." 8 p.m.

SATURDAY, MARCH 17.

Royal Institution.—Professor J. J. Thomson, M.A., F.R.S., on "The Corpuscular Theory of Matter," III. 3 p.m.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.	
Hard Stocks	1	7	0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1	4	0	" " "
Picked Stocks for Facings	2	15	0	" delivered.
Flettons	1	5	0	" at railway depôt.
Red Wire Cuts	1	11	0	" "
Best Fareham Red	3	12	0	" " "
Best Red Pressed Ruabon Facing	5	0	0	" " "
Best Blue Pressed Staffordshire	3	15	0	" " "
Do. Bullnose	4	0	0	" " "
Best Stourbridge Fire Bricks	3	14	0	" " "
GLAZED BRICKS.				
Best White and Ivory Glazed Stretchers	12	0	0	" " "
Headers	11	0	0	" " "
Quoins, Bullnose, and Flats	16	0	0	" " "
Double Stretchers	19	0	0	" " "
Double Headers	16	0	0	" " "
One Side and two Ends	19	0	0	" " "
Two Sides and one End	20	0	0	" " "
Splays, Chamferred, Squints	20	0	0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	" " "
Quoins, Bullnose, and Flats	14	0	0	" " "
Double Stretchers	15	0	0	" " "
Double Headers	14	0	0	" " "
One Side and two Ends	15	0	0	" " "
Two Sides and one End	15	0	0	" " "
Splays, Chamferred, Squints	14	0	0	" " "
Second Quality White and Dipped Salt Glazed	2	0	0	" less than best.

	s.	d.	
Thames and Pit Sand	6	6	per yard, delivered.
Thames Ballast	5	0	" "
Best Portland Cement	25	0	per ton, "
Best Ground Blue Lias Lime	19	0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	" "
PORTLAND STONE (20 ft. average)—			
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½	" "

STONE (*continued*).

	s.	d.	
Ancaster in blocks	1	10	per ft. cube, deld. rly. depôt.
Beer "	1	6	" "
Greenshill "	1	10	" "
Darley Dale in blocks	2	4	" "
Red Corsehill "	2	2	" "
Closeburn Red Freestone	2	0	" "
Red Mansfield "	2	4	" "
YORK STONE—*Robin Hood Quality.*			
Scappled random blocks. 6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	10	" "
	2	3	per ft. super., "
6 in. rubbed two sides ditto, ditto	2	6	" "
3 in. sawn two sides slabs (random sizes)	0	11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	" "
1½ in. to 2 in. ditto, ditto	0	6	" "
HARD YORK—			
Scappled random blocks. 3 in. sawn two sides landings to sizes (under 40 ft. super.)	3	0	per ft. cube, "
	2	8	per ft. super., "
6 in. rubbed two sides ditto	3	0	" "
3 in. sawn two sides slabs (random sizes)	1	2	" "
in. self-faced random flags	0	5	" "

	s.	d.	
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube, deld. rly. depôt.
" " " 6 in. sawn both sides landings	2	7	per ft. super. deld. rly. depôt.
" " " 3 in. sawn both sides random slabs	1	0	" "
" " " 2 in. do.	0	8½	" "

SLATES.

In.	In.	£	s.	d.	
20×10	best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12	" "	13	17	6	" "
20×10	first quality "	13	0	0	" "
20×12	" "	13	15	0	" "
16×8	" "	7	5	0	" "
20×10	best blue Portmadoc	12	12	6	" "
16×8	" "	6	12	6	" "
20×10	best Eureka unfading green	15	17	6	" "
20×12	" "	18	7	6	" "
18×10	" "	13	5	0	" "
16×8	" "	10	5	0	" "
20×10	permanent green	11	12	6	" "
18×10	" "	9	12	6	" "
16×8	" "	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. "
Best Broseley tiles	50	0	per 1000 "
Do. Ornamental tiles	52	6	" "
Hip and Valley tiles	4	0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 "
Do. Ornamental do.	60	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	" "
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 "
Do. Ornamental do.	54	6	" "
Hip tiles	4	1	per doz. "
Valley tiles	3	8	" "
Best "Rosemary" brand plain tiles	48	0	per 1000 "
Best Ornamental tiles	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	8	" "
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 "
Do pressed	47	6	" "
Do. Ornamental do.	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	6	" "

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less thn best.			
Battens: seconds	0	10	0	"			
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards— 1 in. and 1½ in. by 7 in.	0	10	0	more than battens.			
⅞ in.	1	0	0	"			

JOINERS' WOOD.	At per load of 50 ft. £	s.	d.		£	s.	d.
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	...	3	15	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	...	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 11 in.	18	10	0	...	20	0	0
" " 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0

WOOD (continued).

JOINERS' WOOD (continued)—	At per standard. £	s.	d.		£	s.	d.
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3in. by 11in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
" " 3 in. by 9 in.	13	10	0	...	14	10	0
" " battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
" " 3 in. by 9 in.	12	10	0	...	13	10	0
" " battens	10	0	0	...	11	0	0
Pitch-pine: deals	16	10	0	...	20	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments		0	0	"			
Seconds, regular sizes	33	0	0	"			
Yellow Pine oddments	28	0	0	"			
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Dantzig and Stettin Oak Logs— Large, per ft. cube	0	3	0	...	0	3	6
Small " "	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	0	...	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	...	0	0	9
½ in. do. do	0	0	7	...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	0
¾ in. by 7 in. white " "	0	10	0	...	0	11	6
1 in. by 7 in. " " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0	...	7	10	0
Compound Girders, ordinary sections	9	0	0	...	10	0	0
Steel Compound Stanchions	12	0	0	...	13	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	...	10	0	0
Flitch Plates	9	0	0	...	10	0	0
Cast Iron Columns and Stanchions including ordinary patterns	7	10	0	...	8	10	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON— Common Bars	8	0	0	...	8	10	0
Staffordshire Crown Bars, good merchant quality	8	10	0	...	9	0	0
Staffordshire "Marked Bars"	10	0	0	...		—	
Mild Steel Bars	8	15	0	...	9	0	0
Hoop Iron, basis price	9	5	0	...	9	10	0
" " Galvanised	17	0	0	...		—	
(*And upwards, according to size and gauge.)							
Sheet Iron Black— Ordinary sizes to 20 g.	9	10	0	...		—	
" " 24 g.	10	10	0	...		—	
" " 26 g.	12	0	0	...		—	
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14	0	0	...		—	
Ordinary sizes to 22 g. and 24 g.	14	10	0	...		—	
" " 26 g.	15	0	0	...		—	
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	17	0	0	...		—	
" " 22 g. and 24 g.	17	10	0	...		—	
" " 26 g.	19	0	0	...		—	
Galvanised Corrugated Sheets— Ordinary sizes 6 ft. to 8 ft. 20 g.	13	10	0	...		—	
" " 22 g. and 24 g.	14	0	0	...		—	
" " 26 g.	15	5	0	...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	10	0	...		—	
Best Soft Steel Sheets, 22 g. & 24 g.	12	10	0	...		—	
" " " 26 g.	14	15	0	...		—	
Cut Nails, 3 in. to 6 in.	9	10	0	...	9	15	0
(Under 3 in., usual trade extras.)							

	Per ton, in London. £	s.	d.		£	s.	d.
LEAD, &c. LEAD—Sheet, English, 3lb. and up.	18	10	0	...		—	
Pipe in coils	19	0	0	...		—	
Soil pipe	21	10	0	...		—	
Compo pipe	21	10	0	...		—	
ZINC—Sheet— Vieille Montagne ton	33	0	0	...		—	
Silesian	32	10	0	...		—	
COPPER— Strong Sheet per lb.	0	1	0	...		—	
Thin "	0	1	1	...		—	
Copper nails "	0	0	11	...		—	
BRASS— Strong Sheet "	0	0	11	...		—	
Thin "	0	1	0	...		—	
TIN—English Ingots "	0	1	8	...		—	
SOLDER—Plumbers' "	0	0	8	...		—	
Tinmen's "	0	0	10	...		—	
Blowpipe "	0	0	11	...		—	

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¼d.	per ft. delivered.
" fourths	1¾d.	" "
21 oz. thirds	3¼d.	" "
" fourths	2½d.	" "
26 oz. thirds	4¼d.	" "
" fourths	3¼d.	" "
32 oz. thirds	5d.	" "
" fourths	4¼d.	" "
Fluted Sheet, 15 oz.	3¾d.	" "
" 21 oz.	4¼d.	" "
¼ Hartley's Rolled Plate	2d.	" "
⅜ " " "	2¼d.	" "
½ " " "	2½d.	" "
Figured and Oxford Rolled Oceanic, etc. white	4d.	" "
" " " tinted	5¼d.	" "

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	10
" " " in barrels	"	0	1	11
" " " in drums	"	0	2	1
Boiled " " in pipes	"	0	2	0
" " " in barrels	"	0	2	1
" " " in drums	"	0	2	3
Turpentine in barrels	"	0	4	0
" in drums	"	0	4	2
Genuine Ground English White Lead	per ton	22	10	0
Red Lead, Dry	"	21	10	0
Best Linseed Oil Putty	per cwt.	0	7	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post*.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ASHFORD.—For the erection of new police cottages at Ashford, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police. Architect, New Scotland-yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing Cross-chambers, Duke-street, Adelphi, W.C.:—

J. Collinson	£1,249 0 0	A. Francis	£996 13 0
Lathey Bros.	1,018 0 0	A. Jordan	952 0 0
S. Lodge	1,015 0 0	E. Potterton	906 10 0
Waterman & Sons	1,014 0 0	Messom & Sons	902 0 0
G. Merrick	1,003 0 0	H. Richardson	808 7 11

BARGOED.—For erecting house and shop at Gilfach. Mr. W. Harris, architect and surveyor, Gilfach, Bargoed:—

F. D. Watkins	£335 4 10	H. J. Davis, Gilfach, Bargoed*	£320 0 0
S. J. Wride	335 0 0		
T. J. Evans	320 0 0		

BRAY (Ireland).—For 166 yds. of 12-in. main sewer in Little Bray, for the Urban District Council. Mr. C. H. Sutter, C.E.:—

A. Frazer	£165 0 0	S. Worthington	£138 0 0
R. Mosley	156 0 0	G. Dixon	135 0 0
W. Rose	142 10 0	T. W. Little, Bray*	127 2 4

CARSHALTON.—For making-up five new roads across the Carshalton Park estate, for the Urban District Council. Mr. W. Willis Gale, Engineer and Surveyor, Carshalton:—

Fry Bros.	£3,859 11 4	Freeby & Co.	£3,153 19 0
Free & Sons	3,537 0 0	T. Adams	3,086 0 0
Road Maintenance Co., Gravesend	3,415 13 7	G. C. Rayner	3,058 11 0
W. Hall	3,376 0 0	J. E. Etheridge	3,019 17 2
E. Iles	3,256 0 0	J. B. Potter	2,987 0 0
Shelbourne & Co.	3,222 11 7	Hewett & Sons	2,881 17 3
Peerless, Dennis, & Co.	3,188 0 0	J. May	2,743 19 2
		E. Streeter	2,707 7 2
		Cunningham & Co., Fleet, Hants*	2,617 19 9

DORKING.—For stables and alterations to outbuildings, Milton Court, Dorking. Messrs. A. Wickham Jarvis & F. A. Richards, M.A., architects, 36, Victoria-street, London, S.W.:—

Goddard & Son	£1,424	J. Jackson	£1,363
Colls & Son	1,416	Mitchell Bros.*	1,305
L. & F. Pledge	1,402		

DEVIZES.—For erecting twelve cottages and offices, etc., in Gain's-lane, for the Urban District Council. Mr. F. G. Billingham, Borough Surveyor, Town Hall, Devizes. Quantities by Surveyor:—

G. Drew & Co.	£3,533 3 9	A. J. Colborne	£2,700 0 0
Bosher, Sons, & Co.	3,439 4 0	R. Linzey	2,600 0 0
W. Webb	3,230 10 0	T. Stone	2,530 0 0
Bigwood & Co.	2,987 8 0	M. R. Moody	2,520 0 0
G. Moore	2,846 0 0	L. Maslen	2,420 0 0
Butcher & Sons	2,770 0 0	H. Ash	2,302 0 0
A. J. Bell	2,758 0 0	W. E. Chivers, Devizes†	2,297 0 0

DUDLEY HILL.—For erecting shed, chimney shaft, stables, etc., for Messrs. Robinson & Peel. Mr. Arthur Sykes, architect and surveyor, Albert-buildings, Girlington, Bradford:—

Builders: C. & J. Wood, Dudley Hill*	£2,000
Joiner: R. Raper, Dudley Hill*	540
Slater: G. Wilkinson, West Bowling*	309
Plumber: T. Perry, Horton-road, Bradford*	220
Plasterers and Concreters: J. & W. Bates, Manchester-road, Bradford*	600

ENFIELD.—For proposed additions and new story to the children's receiving wards at the Enfield Workhouse, Enfield, for the Guardians of the Edmonton Union. Mr. Stuart Hill, architect, 106, Cannon-street, E.C. Quantities by Messrs. D. Campbell & Son, 4, Finsbury-circus, E.C.

J. Stewart	£3,584 0	Pavey & Son	£3,252 0
Pollard & Brand	3,450 0	Rowley Bros.	3,230 0
Concrete Homes Syndicate	3,441 0	W. Lawrence & Son	3,194 0
Banyard & Son	3,420 0	F. W. Mason	3,192 0
Martin, Wells, & Co., Ltd.	3,400 0	H. Knight & Son	3,187 0
W. Shurmur & Sons	3,390 0	Allen, Fairhead, & Son	3,170 0
Mattock & Parsons	3,373 0	Myall & Upson	3,120 0
A. E. Symes	3,325 0	J. Thomas	3,100 0
A. Monk	3,320 0	L. & W. H. Patman	3,100 0
Lane & Harvey	3,284 0	Fitch & Cox‡	2,994 10

‡ Accepted subject to modification.

ERITH.—Works for the Urban District Council:—

Erecting a Transformer House and Tool Shop, Brook-street, Northumberland Heath.

J. T. Jarvis & Sons	£115 0 0	G. H. Gunning & Sons	£93 0 0
F. Spencer & Son	105 0 0	G. Wyman	85 15 0
J. Ellingham & Sons	96 0 0	Friday & Ling.	82 0 0
		A. F. McLean, Erith*	72 10 6

For the Erection of Shelters on the Leuness Heath and Brook-street Pleasure Grounds.

Friday & Ling.	£152 0 0	G. Finnecy & Son	£121 9 8
J. Ellingham & Sons	149 0 0	G. H. Gunning & Sons	114 0 0
F. Spencer & Son	130 0 0	A. F. McLean, Erith*	94 0 0
J. T. Jarvis & Sons	129 10 0		

Repairs to Engine-house, etc., at the Sewage Disposal Works

J. T. Jarvis & Sons	£168 15 0	G. H. Gunning & Sons	£58 0 0
J. Ellingham & Sons	100 0 0	A. F. McLean	56 10 0
P. Finnecy & Son	64 9 6	Friday & Ling, Erith*	46 0 0

FRINTON-ON-SEA.—The construction of two storm-water overflows, for the Urban District Council. Mr. E. M. Bate, Surveyor to the Council:—

G. R. Mann	£662 0 0	G. Wimpey & Co.	£429 0 0
C. W. Killingback & Co.	661 0 0	D. H. Porter	422 0 0
Z. Fairclough	476 0 0	G. G. Rayner	416 0 0
Fry Bros.	473 0 0	J. W. Dean, Ltd.	407 0 0
Smeed, Dean, & Co.	452 0 0	Wilson, Border, & Co.	398 0 0
G. Double	449 0 0	A. E. Farr, Frinton-on-Sea, Essex‡	380 11 4
G. Bell	445 0 0		

‡ Recommended for acceptance.

FRINTON-ON-SEA.—For sewering and making up Queen's-road, for the Urban District Council. Mr. E. M. Bate, Surveyor to the Council:—

C. W. Killingback & Co.	£2,305 0 0	G. G. Rayner	£1,880 0 0
Fry Bros.	2,227 0 0	L. Fairclough	1,875 0 0
G. Wimpey & Co.	2,116 0 0	G. Bell	1,871 0 0
D. H. Porter	2,115 0 0	Smeed, Dean, & Co.	1,810 0 0
G. R. Mann	2,106 0 0	A. E. Farr, Frinton-on-Sea, Essex‡	1,725 6 6
J. W. Dean, Ltd.	2,026 0 0		
G. Double	1,964 0 0		
Wilson, Border, & Co.	1,883 0 0		

‡ Recommended for acceptance.

HANDSWORTH.—For heating and ventilating apparatus, new schools, Canterbury-road, for the Education Committee. Messrs. Wood & Kendrick, architects, West Bromwich:—

Stott & Co., Birmingham*	£790

HEREFORD.—For erecting Holmer Council School. Mr. J. Parker, City Surveyor, Hereford:—

J. Charles	£2,087 0 0	Davies & Co.	£1,799 5 9
R. L. Friend	1,850 0 0	C. Cooke	1,775 0 0
J. C. Vaughan	1,835 0 0	W. C. Bolt	1,765 0 0
Turford & Southward	1,833 0 0	W. Bowers & Co.	1,688 0 0
R. R. Dyke	1,825 0 0	W. Powell	1,669 10 0
H. Smith	1,815 0 0	E. W. Wilks, Hereford*	1,555 0 0
Pugh & Son	1,808 0 0		

KINGSTON-ON-THAMES.—For London and Provincial Bank, Kingston-on-Thames. Mr. Alfred Mason, architect and surveyor, Broughton-chambers, Victoria-road, Surbiton:—

R. Scase & Son	£3200	J. Dorey & Co., Ltd.	£2760
Babbs Bros.	3163	W. Irwin	2738
Messom & Sons	2879	C. Wall, Ltd.	2660
W. H. Gane & Sons	2772	F. Hawkey	2525

TENDERS—*Continued on page 277.*

List of Contracts, etc.

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
*SUNDAY SCHOOLS	Willesden Wesly. Ch. Trustees	Not stated	Mar. 26
*BATHS, FIRE-STATION, & BRANCH LIBRARY, REDDISH	Stockport County Borough ..	Not stated	No date.

CONTRACTS.

(For some Contracts still open, but not included in this List, see previous issues.)

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be delivered
Materials	Yardley R.D.C.	A. W. Smith, Eng., Council-house, Sparkhill, nr. Birmingham	March 12
Maintenance of Fire Alarm Installation	do.	do.	do.
Materials	Maldon R.D.C.	E. J. Ennals, Surveyor, 6, Market-hill, Maldon	Mar. 13
Alterations and Repairs, Tattingstone Workhouse	Samford Guardians	H. J. Wright, Architect, 4, Museum-street, Ipswich	do.
Side Planing Machine	Stockport Gas Department ..	S. Meunier, Engineer, Gasworks, Stockport	do.
Public Improvement Works, Barnley-road	Halifax Improvement Com...	J. Lords, Borough Engineer, Town Hall, Halifax	do.
Additions, etc., at the Cottage, Canbury-gardens	Kingston-upon-Thames Corp.	Borough Surv's Office, Municipal Offices, Kingston-on-Thames	do.
Stores	West Derby Guardians	Workhouse, Walton	do.
Stores	Huddersfield Gas Committee	Gas Engineer, Gasworks, Huddersfield	do.
Tower and Spire, Balderstone Church, near Blackburn		Wright & Son, Surveyors, Lancaster	do.
Annual Contracts	Sutton Coldfield Corporation	W. A. H. Clarry, Boro' Eng, Council Hse., Sutton Coldfield	Mar. 14
Alterations to Steam Engines and Air Compressors	Eastbourne Corporation	A. E. Prescott, Borough Engineer, Town Hall, Eastbourne..	do.
Steel Posts, etc., for Fencing	East Indian Railway Co.	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Galvanised Eyebolts and Strand Wire for Fencing	do.	do.	do.
Materials and Jobbing Work	Ipswich Sanitary Authority ..	E. Buckham, Borough Surveyor, Town Hall, Ipswich	do.
Tailor's Shop, etc., Shotton	Sherburn Hill Corporation Soc.	At the Shotton Premises	do.
Road Materials	Uckfield R.D.C.	F. Holman, Clerk, 86, High-street, Lewes	do.
350 tons of Channel Island Granite Spalls	Greenwich Guardians	Union Offices, Greenwich	do.
Cast-iron Pipes, Stores, etc.	Halifax Gasworks Committee	J. Wilkinson, Engineer, Gasworks, Halifax	do.
Stores	Leeds Corporation	J. J. Mann, Dock-street Depot	do.
Lime	do.	Sewage Engineer's Office, Municipal-buildings, Leeds	do.
Governor and Exhauster House, Treorchy	Rhondda U.D.C.	O. Thomas, Gas and Water Offices, Pentre	do.
15-in Gas Station Governor and Connexions	do.	do.	do.
Gas Engine and Exhauster	do.	do.	do.
Stores	do.	do.	do.
Materials	Stockport Gas Committee	S. Mennier, Gasworks, Stockport	do.
223 yds. of cast-iron Pipes, 18-in. diameter	Rochdale Paving Committee	S. S. Platt, Borough Surveyor, Town Hall, Rochdale	do.
Broken and Unbroken Stone and Haulage	Sedgefield R.D.C.	T. W. Roberts, Surveyor, Sedgefield, Ferry-hill	do.
*TIMBER WAREHOUSE, LEYTON	Midland Railway Company ..	Company's Engineer, Derby Station	do.
Steam and Exhaust Pipes, etc. for Generating Station	Leyton U.D.C.	F. H. Lewis, Elec. Light, etc., Works, Cathall-rd., Leytonstone	March 15
Materials	Leeds Sewerage Committee ..	City Engineer's Office, Leeds	do.
Cleaning, Painting, etc., Police-stations	Leeds Corporation	do.	do.
Pair of Villas in Heaton-grove, Frizinghall		Walker & Collinson, Architect, Cheapside-chambers, Bradford	do.
Road Metal and Carting	Chester-le-Street R.D.C.	G. W. Ayton, Surveyor's Office, Chester-le-Street	do.
Materials, etc.	Godstone R.D.C.	J. George-Powell, Engineer, Council Offices, Godstone	Mar. 16
Materials	Morley Corporation	W. E. Patman, Borough Engineer, Town Hall, Morley	do.
Road Material	Rothwell U.D.C.	J. Southwart, Surveyor, Council Offices, Rothwell, nr. Leeds	do.
Sanatorium for Females, Bagthorpe Workhouse		A. Marshall, Architect, King-street, Nottingham	do.
Stores (Ribble Navigation)	Corporation of Preston	Engineer, Dock Offices, Preston	do.
Heating Apparatus, Pavilion and Café, Royal Prince's-parade	Bridlington Corporation	Borough Surveyor, Town Hall, Bridlington	do.
Granite	Staines U.D.C.	E. J. Barrett, Engineer and Surveyor, Town Hall, Staines	do.
Water Supply from Target Springs to Aberlour		J. Wittet, Architect, Elgin	do.
Annual Supplies	East Ham Town Council	C. E. Wilson, Town Hall, East Ham, E.	Mar. 17
Granite	Northamptonshire Co. Council	C. S. Morris, County Surveyor, County Hall, Northampton..	do.
Penmaenmawr Setts, etc.	Bucklow R.D.C.	J. Burgess, Tabley, Knutsford	do.
Paving	do.	do.	do.
Creosote Oil	N.E. Railway Co.	E. H. Clark, Stores Superintendent, Gateshead	do.
Stone Bridge over Flosh Burn, near Greenhill, Stapleton	Longtown R.D.C	C. B. Hodgson, Clerk, The Courts, Carlisle	do.
Alterations, etc., to Administrative Block of Hospital	Spennymoor U.D.C.	C. R. Spencer, Surveyor, Council Offices, Spennymoor	do.
Supplies	East Ham Town Council	C. E. Wilson, Town Clerk, Town Hall, East Ham, E.	do.
Road Material	Newark R.D.C.	R. Oakden, Jun., District Surveyor, Winchilsea-av., Newark	Mar. 19
3 12-ton Coal Waggons	Coventry Gas Committee	F. W. Stevenson, Engineer, Gasworks, Coventry	do.
Granite	Wellingborough R.D.C.	W. Jackson, Clerk, Wellinborough	do.
Stone	Sculcoates R.D.C.	A. Greaves, Surveyor, Woodbine Villa, Hessle	do.
Sunday-school, Primitive Methodist Chapel, New Wortley	Trustees	T. A. Buttery & S. B. Birds, Architects, Queen-st., Morley	do.
C.M. Chapel and Schoolroom, Maesycwmmer		Morgan James, The Factory, Maesycwmmer	do.
Additions, etc., at Dan-y-graig House, Llantrisant	Dr. I. H. Davies	Cook & Edwards, Architects, Masonic-buildings, Bridgend	do.
Stabling	do.	do.	do.
Conveniences on the Slopes of the Cliffs	Southend-on-Sea Corporation	E. J. Elford, Borough Engineer, Southend-on-Sea	do.
Stores	Epsom U.D.C.	R. R. Capson, Surveyor, "Bromley Hurst," Church-st., Epsom	do.
Resetting Two Beds of Retorts at Gasworks	Knaresborough U.D.C.	F. Cartlidge, Surveyor, Knaresborough	do.
New Bed of Five Retorts at Gasworks	do.	do.	do.
Private Street Improvement Works	Stockton-on-Tees Corporation	M. H. Sykes, Boro' Engineer, Town Hall, Stockton-on-Tees	do.
*PAINT., COLOURING, ETC., AT INFIRMARY, NOTTING HILL	St. Marylebone Guardians	Steward, at Infirmary, Rackham-street, Notting Hill, W.	do.
Granite, Slag, and Gravel	Ely R.D.C.	R. Ennals, District Surveyor, Lynn-road, Ely	Mar. 20
Refuse Destructor Plant	Corporation of Greenock	Burgh Electricial Engineer, Greenock	do.
Girls' Secondary School, Fawcett-road, Portsmouth	Education Authority	C. W. Bevis, Architect, Elm-grove, Southsea	do.
Pavilion, Shelters, Conveniences, etc., Kingsway-gardens	Cleethorpes, etc., U.D.C.	E. Rushton, Engineer, Council House, Cleethorpes	do.
Road Material	Maidstone Corporation	Borough Surveyor, Fair Meadow, Maidstone	do.
Materials	St. Helens Corporation	G. J. C. Broom, Borough Engineer, Town Hall, St. Helens	do.
Materials	Leek U.D.C.	W. E. Beacham, Surveyor and Water Eng., Town Hall, Leek	do.
Private Streeet Improvement Works	Twickenham U.D.C.	F. W. Pearce, Surveyor, Town Hall, Twickenham	Mar. 21
Elementary School, Lewis-street, Patricroft	Eccles Corporation	J. H. Woodhouse, Architect, 100, King-street, Manchester	do.
Two Shops and Dwelling-Houses, Victoria-road, Dartmouth	Mr. W. H. Brown	M. Luke, Architect, Studio Royal, Victoria-road, Dartmouth	do.
Materials	Clayton-le-Moors U.D.C.	A. Dodgeon, Surveyor, Council Offices, Clayton-le-Moors	do.
Road-waggon Weighbridge at Waterworks, Tees Cottage	Darlington Corporation	G. Winter, Borough Surveyor, Darlington	do.
Dwarf Walls, etc., Recreation Ground	Bootle Corporation	B. J. Walfenden, Borough Engineer, Bootle	do.
Wrought-iron Railings and Gates to Recreation Ground	do.	do.	do.
Road Materials	Hoo R.D.C.	R. P. Smyth, Clerk, Stroud	do.
*ADDITIONS, ETC., TO MARGARET-RD. SCHOOL, E. BARNET	Herts County Council	County Surveyor, Hatfield	do.
*PAINTING WORKS, WOOLWICH AND NEW CROSS	Metropolitan Asylums Board	Office of the Board, Embankment, E.C.	do.
School, Northumberland-road, Old Trafford	Stretford Education Authority	E. Woodhouse, Architect, 88, Mosley-street, Manchester	Mar. 22
Alterations, etc., Armada-street, Electricity Station	Plymouth Corporation	J. Paton, Borough Engineer, Municipal Offices, Plymouth	do.
545 lineal yds. of 12-in. Pipe Sewer	Gorton U.D.C.	C. J. Lomax, Alliance-buildings, 37, Cross-street, Manchester	do.
Sewerage of Part of Extended Area, St. Nicholas Ward	Guildford Town Council	C. G. Mason, Borough Engineer, Tuns Gate, Guildford	do.
Road Material	Luton Corporation	S. F. L. Fox, Borough Surveyor, Town Hall, Luton	do.
Steel and Cast-iron Work for Drying House Floor	Halifax Union Workhouse	W. C. Williams, Architect, 29, Southgate, Halifax	Mar. 23
Pump House, Withington Workhouse	Chorlton Guardians	C. Clegg & Son, Architects, 21, Spring-gardens, Manchester	do.
Supplies, Borough Surveyor's Department	Wrexham Town Council	Borough Surveyor, Wrexham	do.
Supplies, Electrical Engineer's Department	do.	Borough Electrical Engineer, Wrexham	do.
Well-sinking at Bluehouse, Saltwood	Hythe Corporation	C. Jones, Borough Engineer, Bank-buildings, Hythe, Kent	Mar. 24
Cottages, Normandy, near Wanborough	Mr. H. Potter	A. J. Stedman, Architect, South-street-chambers, Farnham	do.
Small Breakwater, the Bught, St. John's Point, East Mey	Caithness County Council	Carmichael & Sharman, Engineers, 14, Queen-st., Edinburgh	do.
Private Street Works	Lovenshulme U.D.C.	J. Jepson, Surveyor, Guardian-chmbs., Tiviot Dale, Stockpt.	do.
Sewage Purification Works, Chingford	Chingford U.D.C.	W. Stair, Surveyor, Council Offices, Chingford	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be delivered
Stores	Madras Railway Company ..	W. H. Cole, Sec., 1, Broad-street-place, Finsbury-circus, E.C.	March 26
Main Sewerage Works, Burnley-road	Todmorden Health Committee	Borough Sur.'s Drawing Office, Market-ground, Todmorden	do.
Main Sewerage Works, Halifax-road	do.	do.	do.
Sewerage Works, Broughton and Cransley	Kettering R.D.C.	D. J. Diver, High-street, Desborough, Northants	do.
Hidenborough Sewerage and Sewage Disposal Works	Tonbridge R.D.C.	F. Harris, Eng. & Sur., Broadway, Southboro' Tunbridge Wells	do.
Hademere Waterworks (Pumping Machinery)	Hambledon R.D.C.	R. B. Grantham & Son, Eng., 23, N'thumberland-av., London	do.
Taking Down and Rebuilding House at Cenarth	Mrs. Williams	A. O. Evans, Williams & Evans, Architects, Pontypridd	do.
*CONSTRUCTING SEWERS, ETC.	Barnet U.D.C.	Council's Surveyor, 40, High-street, Barnet	Mar. 27
Making-up, etc., Streets	Deptford Borough Council ..	Borough Surveyor, Town Hall, New Cross-road, S.E.	do.
Stone, Labour Tools	Malling R.D.C.	J. Marshall, Surveyor, West Malling	do.
*ERECTION OF NEW HEAD POST OFFICE, BIRKENHEAD	Commrs. of H.M. Works, etc.	H.M. Office of Works, Head Post Office, Liverpool	do.
School, Ropery-road, Gainsborough	Lindsey County Council	Scorer & Gamble, Architects, Bank-street-chambers, Lincoln	Mar. 29
Sewage Disposal Works at Greetland	Greetland U.D.C.	R. E. W. Berrington & Son, Engs., Bnk.-bldgs., Wlvrhmptn.	Mar. 31
*NEW COUNCIL SCHOOL, LUDDENHAM	Kent Education Committee ..	E. Pover & Son, Architects, Faversham	do.
*NEW COUNCIL SCHOOL, TONBRIDGE	do.	J. W. Little, Architect, 149, High-street, Tonbridge	do.
*NEW COUNCIL SCHOOL, EAST WICKHAM	do.	Offices of Committee, 44, Bedford-row, W.C.	do.
Rhenish Basalt Spalls	Hastings Corporation	P. H. Palmer, Borough Engineer, Town Hall, Hastings	Apr. 5
Road Materials and Cartage	Tenterden Corporation	W. L. C. Turner, Boro. Surveyor, Town Hall, Tenterden, Kent	April 14
Jobbing Works	do.	do.	do.
Bungalow at Collingham Bridge	.....	Mr. Reid, East Keswick	No date.
Dairy Buildings, Dews-road, Fisherton	Salisbury, etc., Dairy Co....	A. C. Bothams, Architect, 32, Chipper-lane, Salisbury	do.
Residence, Elgin	.....	R. B. Pratt, Architect, Town and County Bank-bldgs., Elgin	do.
Farm House, Filbert-grove, Eastrington	.....	F. Wade, Architect, 23, Bank-street, Bradford	do.
Three-story Stone Building	.....	Olive & Partington, Ltd., Turn Lee Mills, Glossop	do.
*ERECTING PORTION OF CHURCH AT BECKENHAM	Rector and Churchwardens ..	A. H. Hoole, 36, Great James-street, Bedford-row, W.C.	do.
*ERECT. OF PUB. ELEMENT. SCHL., KINGSTON-UPON-TH.	Education Committee	F. W. Roper, 9, Adam-street, Adelphi, W.C.	do.
*NEW DRILL HALL, BISHOP'S STORTFORD	1st V.B. Beds. Regt., Hertford	Captain J. B. Wroughton, Hertford	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*SURVEYOR'S ASSISTANT	Beckenham U.D.C.	100*l.* per annum	Mar. 13
*SAW MILL FOREMAN	London County Council.....	Not stated	Mar. 17

AUCTION SALES.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BUILDER'S, IRONFOUNDER'S, ETC., STOCK-IN-TRADE—18-20, Southwark Bridge-rd., S.E.	H. W. Smith	Mar. 12
*FREEHOLD SHOP PLOTS, HOUNSLOW—At Council House, Hounslow	Long & Sons	do.
*STONE WHARF AND CONTENTS, REGENT'S PARK BASIN, N.W.—At the Mart	Rutley, Son, & Vine	Mar. 13
*BRICKMAKER'S PLANT, STOCK, AND BRICKS, IVER NR. UXBRIDGE—On the Premises	Buckland & Sons	Mar. 15
*500,000 HARD CLAMP BRICKS—The Station Brick Works, West Houthly, Sussex	J. R. Thornton	Mar. 21
*FREEHOLD BUILDING PLOTS—The Greyhound Hotel, Croydon	R. W. Fuller, Moon, & Fuller	Mar. 22
*BUILDING SITE, HAYMARKET, S.W.	May & Rowden	Mar. 29
*FREEHOLD FACTORY SITES, NEAR HAYES STATION—On the Estate	Woods	do.
*FREEHOLDS—The Mart	Alfred Savill & Sons	Mar. 30
*FREEHOLD BUILDING LAND, SHEERNESS—At the Mart, E.C.	Tuckett & Son	Apr. 2
*FREEHOLD BUILDING SITE, TOTTENHAM COURT-ROAD—At the Mart, E.C.	Ventom, Bull, & Cooper	do.

* *Those with an asterisk are advertised in this number*: *Competitions*, iv.; *Contracts*, iv. vi. viii. x.; *Public Appointments*, xvii.; *Auction Sales*, xxviii.

TENDERS.—*Continued from page* 275.

KINGSTON.—For building a pattern stores and extension to foundry for the Campbell Gas Engine Co., Ltd. Messrs. Jackson & Fox, architects, 7, Rawson-street, Halifax:—

Mason: H. Jenkinson & Son, Queen's-road, Halifax	£830 0
Steel Merchant: A. Pulman & Son, Ltd., Horton-street, Halifax	700 0
Joiner: J. Halliday, Miall-street, Halifax	644 0
Plumber: Bolton Bros., Gibbet-street, Halifax	166 0
Patent Glazier: Heywood & Co., Huddersfield	79 14
Plasterer: Rushworth & Frith, New Bank, Halifax	111 10
Painter: S. Ackroyd, Queen's-road, Halifax	55 16

LEEDS.—For erecting Trinity Presbyterian Church, Harehills-avenue. Mr. W. H. Beevers, architect, 26, Bond-street, Leeds. Quantities by the architect:—

Mason: J. Richardson, Chapeltown, Leeds*	£3,146 0 0
Joiner: F. O. Farrall, Wortley, Leeds*	750 0 0
Slaters: J. Atkinson & Son, Whitehall-road, Leeds*	113 10 0
Plumber: T. Barrand, Meanwood-street, Leeds*	68 10 0
Plasterer: F. Mountain, Manor-road, Leeds*	137 4 0
Painters: Greenwood Bros., Briggate, Leeds*	65 12 0
Leaded Lights: Williams Bros., Kale-yards, Chester*	86 8 6
Northern Asphalte Co., Woodhouse-street, Leeds*	11 18 8

LEITH (N.B.).—For additions and alterations on Bonnington-road public school, for the School Board. Mr. G. Craig, architect, 85, Duke-street, Leith:—

Mason: Melrose & Thomson, Edinburgh*	£5,851 12 8
Electric: Stewart & Bucher, Leith*	425 0 0
Painter: P. & J. Gordon, Edinburgh*	307 17 4
Cement: J. L. Sutherland, Leith*	722 19 0
Plaster: J. L. Sutherland, Leith*	580 15 0
Iron: Redpath, Brown, & Co., Edinburgh*	731 10 9
Tiling: Clahae & Co., Edinburgh*	653 0 0
Slater: W. McLean, Leith*	216 14 2
Plumber: Collier & King, Leith*	676 0 0
Joiner: J. & W. Hamilton, Leith*	4,248 0 0
Heating: McKenzie & Moncur, Edinburgh*	731 0 0

LITTLE ILFORD.—For the drainage works in connexion with the taking-in of additional land at the City of London Cemetery, for the Corporation of the City of London:—

J. Jackson*	£275

*LONDON.—For an external iron staircase, and for other measures to secure means of escape from fire, at the Ponton-road day industrial school, Clapham, for the London County Council:—

H. & S. Jones	£232 10	G. Mills & Co.	£195 0
Hayward Bros. & Eckstein, Ltd.	220 0	McDowall, Steven, & Co., Ltd.	174 0
Merryweather & Sons, Ltd.	218 0	Wilmer & Sons, 11 to 14, Bury-st., St. Mary Axe*	160 0
Peirson & Co.	199 19	F. A. Norris & Co.	159 15
A. Ritchie & Co.	199 15	Cadogan Ironworks	157 10
St. Pancras Iron-work Co., Ltd.	199 0		

[The architect's (Education) estimate, comparable with these tenders, is £150.]

LONDON.—For reconstruction of first section of lines, for road-work (*a*) from Shoreditch to Stamford-hill, and (*b*) from Bloomsbury to Poplar, for the London County Council:—

Shoreditch to Stamford-hill route.	
R. W. Blackwell & Co., Ltd.	£147,887 5 5
J. Mowlem & Co., Ltd.	147,717 0 0
W. Griffiths & Co., Ltd.	145,501 9 2
Dick, Kerr, & Co., Ltd.	143,105 6 0
J. G. White & Co., Ltd., London*	141,399 6 9
[Estimate (comparable with tenders) £135,980 9 9.]	
Bloomsbury and Poplar route.	
J. Mowlem & Co., Ltd.	£243,190 10 0
W. Griffiths & Co., Ltd.	242,425 12 8
J. G. White & Co., Ltd.	239,995 5 6
Dick, Kerr, & Co., Ltd., London*	238,045 12 8
[Estimate (comparable with tenders) £226,831 18 8.]	

LONDON.—For making-up and paving Collingbourne-road and portion of Halsbury-road, for Hammersmith Borough Council. Mr. H. Mair, Borough Surveyor, Town Hall, Hammersmith:—

	Collingbourne-road.		Halsbury-road.	
W. Neave & Son	£800 0 0	....	£300	0 0
Martin, Wells, & Co., Ltd.	790 0 0	....	276	0 0
R. Morecroft	736 0 0	....	249	0 0
J. Mowlem & Co., Ltd.	727 0 0	....	251	0 0
M. J. Allen	725 12 6	....	268	15 6
J. Jackson	722 0 0	....	232	0 0
H. J. Greenham	719 0 0	....	274	0 0
A. B. Champness	706 0 0	....	244	0 0
J. & W. Drake	702 0 0	....	259	0 0
G. Wimpey & Co., The Grove, Hammersmith*	699 0 0	....	240	0 0

LONDON.—For relaying wood floors at the Eastern Fever Hospital, Homerton, N.E., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

B. W. Barratt..	£445 17 6	T. Pearce.....	£225 0 0
R. Woollaston & Co.....	349 0 0	W. Payne	209 10 0
W. Ball	283 15 0	F. Deacon & Son, Woodside, Crockford Park-rd., Addlestone, Surrey*.....	204 0 0
W. Reason	269 0 0		
Dovetail Mosaic Company....	249 0 0		
E. Davey.....	234 10 0		
C. F. Rogers ..	226 10 0		

LONDON.—For the supply and fixing of a penstock on the North Kensington relief sewer at the junction of Cornwall-road and Basing-road, for the London County Council:—

Ashton, Frost, & Co., Ltd.....	£270 0	J. Blakeborough & Sons	£185 15
Hunter & English	256 0	G. Waller & Son, Stroud*	163 0
J. Cochrane.....	220 0		
Glenfield & Kennedy, Ltd.....	215 0		

LYDNEY.—For additions to the Lydney secondary school, for the Forest of Dean Education and Lydney Institute Committee. Mr. R. S. Phillips, Architect, Shire Hall, Gloucester. Quantities by Messrs. Vale & Kingsford, George-street, Gloucester:—

W. E. Lewis	£4,479 0 0	A. J. Dolman	£3,860 0 0
T. Griffiths ..	4,362 15 0	J. Byard & Son	3,826 10 0
A. S. Cooke..	4,222 16 10	Orchard & Peer	3,789 0 0
W. Jones....	4,157 0 0	E. Walters & Son, Bristol*	3,762 0 0
Woolley & Son	4,000 0 0		
Saunders & Sons, Ltd.	3,950 0 0		

ORPINGTON (Kent).—For erecting two houses, for Mr. J. Greenwood and Mr. C. P. Jannan. Mr. John W. Rhodes, architect, Mitre Court-chambers, Mitre Court, Temple, London, E.C. No quantities:—

Rice	£2,138	Lowe	£1,806
Spiers & Son	2,076	Podger	1,655
Somerford & Son ..	1,932	Blay	1,415

ROMFORD.—For reconstructing the bridge over the River Rom, in High-street, for the Urban District Council. Mr. Herbert T. Ridge, Surveyor:—

W. Fasey	£1,510 0 0	R. H. B. Neal & Co.....	£1,276 0 0
Tilbury Contracting and Dredging Company ..	1,396 17 5	J. Strachan ..	1,250 0 0
		Wilson, Border, & Co.	1,190 10 0
A. Fasey & Son	1,356 0 0	D. T. Jackson, Barking* ..	1,125 0 0
G. Bell	1,297 0 0		

ST. DAVID'S (Pembroke).—For erecting a pair of houses, for Messrs. G. & C. T. Spackman. Mr. Hugh J. Protheroe Thomas, architect, 9, Victoria-place, Haverfordwest:—

James & Lawrence ..	£902	T. Williams & Co. ..	£790
J. Williams	816	J. Williams & D. Edwards	770
J. Morris	795		

ST. DAVID'S (Pembroke).—For erecting a semi-detached villa, for the Rev. J. H. Davies. Mr. Hugh J. Protheroe Thomas, architect, 9, Victoria-place, Haverfordwest:

J. Morris	£682	T. Williams & Co.....	£430
J. Williams, Roch‡ ..	568		

‡ Accepted at a reduction to £535.

SOUTHEND.—For new counters, fittings, engines, etc.* at the Hotel Victoria, Southend-on-Sea, for Mr. A. E. Broadhurst. Mr. C. Cooke, architect and surveyor, Southend-on-Sea:—

J. C. Flaxman	£153	Swire & Co., Earl's-buildings, Featherstone-street, City-road, London*	£105
E. Cripps	150		
F. & E. Davey	148		

TODDINGTON.—For proposed new Council school. Mr. R. S. Phillips, Architect, Shire Hall, Gloucester:—

W. Jones....	£1,615 0 0	Espley & Co., Ltd.	£1,425 0 0
A. Estcourt & Sons	1,522 0 0	Orchard & Peer	1,417 0 0
T. Hopkins ..	1,498 0 0	Collins & Godfrey, Tewkesbury‡	1,398 0 0
A. S. Cooke..	1,465 19 4		

‡ Accepted with reductions and omissions.

TUNBRIDGE WELLS.—For alterations and additions to "The White Cottage," Coleman's Hatch, for Miss Hoare. Mr. W. Kirk, architect, 30, Monson-road, Tunbridge Wells:—

J. Luxford	£748 0 0	F. W. Booth & Sons*.....	£700 0 0
J. Waters	739 15 6		

For Gardener's Cottage at the above.

F. W. Booth & Sons* £200

TOOTING.—For cleaning and painting works at the Grove Fever Hospital, Tooting, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

W. Furniss	£610 0	W. A. King	£410 0
Greenhill & Markham	593 0	J. J. Richards....	390 0
R. Woollaston & Co.	587 17	W. J. Simms & Sons	379 0
Spiers & Pond, Ltd.	550 0	W. Hussey	377 0
E. Wall	496 12	G. McArthur & Co.	375 10
E. Proctor & Son	487 0	J. Arundel (executors of).....	367 0
S. T. Wright & Co.	441 15	A. Porter, 702, High-road, Tottenham, N.*	364 0
J. Walker & Son..	440 0		
H. Smith	430 0		

WARMINSTER.—For erecting a cottage at Toppslane, for Mr. J. Grant. Mr. A. F. Long, architect, 53, Market-place, Warminster:—

H. Franklin.....	£194 0	R. Butcher & Son, Warminster* ..	£169 18
A. L. Ponton	172 10		

WINCHESTER.—For new roads and sewers, Greenhill Estate, Winchester, for the Ecclesiastical Commissioners. Messrs. Clutton, surveyors, 9, Whitehall-place, S.W. Messrs. Lemon & Blizard, engineers for the works, Southampton, Salisbury, and 11, Victoria-street, Westminster, S.W.:—

A. G. Osenton	£4,458 0 0
H. Boyer	4,099 0 0
Wort & Way	3,995 0 0
R. Richards.....	3,753 0 0
Playfair & Toole	3 621 0 0
S. Kavanagh & Co.....	3,454 16 3
T. Turner & J. Kersley	3,317 5 7
J. Trueman	3,232 0 0
F. Osman.....	3,200 0 0
J. Butt.....	3,200 0 0
J. & F. Binns	3,187 0 0
Coston & Co.	3,179 0 0
J. J. Paddington.....	3,142 7 7
H. Lawrence	3,119 0 0
Hewitt & Sons.....	3,079 1 4
Cunningham & Co.....	3,031 10 9
Tryhorn & Son	2,995 0 0
J. Douglas, Southampton*	2,946 3 6
Grounds & Newton	2,660 0 0

WORKINGTON.—For erecting four houses in Frostoms-road, for Mr. W. Grave. Messrs. W. J. Scott & Co., architects and surveyors, Victoria-buildings, Workington:—

Builder: J. Roper, Westfield, Workington*	£350 17 0
Joiner: G. H. Chambers, Workington*	212 0 0
Slaters: J. Lythgoe & Sons, Workington*	50 12 4
Plumber: W. M. Walker, Workington*	77 0 0
Plasterers: J. Perrin & Sons, Workington*	79 0 0
Painter: T. W. Keenliside, Workington*	24 0 0

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